

MHI
Copy 3

FM 7-19
2060
FM 7-35

DEPARTMENT OF THE ARMY FIELD MANUAL

PROPERTY OF
THE QUARTERMASTER LIBRARY
QUARTERMASTER SCHOOL
QUARTERMASTER TRAINING COMMAND
FORT LEE, VA.

TANK COMPANY

INFANTRY REGIMENT

RESTRICTED
FOR HISTORICAL USE ONLY
REFERENCE USE ONLY

UNCLASSIFIED

NOT TO BE TAKEN FROM LIBRARY

DISSEMINATION OF RESTRICTED MATTER.—No person is entitled solely by virtue of his grade or position to knowledge or possession of classified matter. Such matter is entrusted only to those individuals whose official duties require such knowledge or possession. (See also AR 380-5.)

REGRADED UNCLASSIFIED BY
AUTHORITY OF DOD DIR. 5200.1 R
BY *Rakess* on 02/03

FM 7-35

C #2

FIELD MANUAL

TANK COMPANY, INFANTRY REGIMENT

CHANGES } DEPARTMENT OF THE ARMY
No. 2 } WASHINGTON 25, D. C., 14 September 1953

FM 7-35, 20 June 1949, is changed as follows:

5. Duties of Company Headquarters Noncommissioned Officers

a. Company Headquarters Section.

* * * *

(3) Rescinded.

b. Maintenance Section.

* * * *

(3) Rescinded.

(4) The *turret mechanics* repair and tank cannon, machine guns, and individual arms. They maintain adequate * * * (See par. 108.)

(5) The *radio mechanic*. (For detailed duties, see par. 84.)

* * * *

53. Attack Order

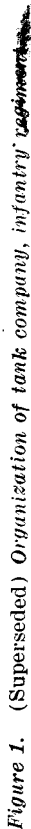
After completing his * * * simple. It includes:

* * * *

e. (Superseded) The location of the aid station and means of ammunition and gasoline resupply.

* * * *

~~RESTRICTED~~



~~RESTRICTED~~—Security Information

56. Methods of Attack (Superseded)

a. General.

- (1) There are three fundamental methods for employing the infantry-tank team in the attack—the tanks and infantry attack on the same axis; the tanks and infantry attack on two converging axes; and the tanks support by fire only. The method which best assures success for a specific attack is determined by the type of mission, the nature of the terrain, and the composition of the infantry-tank team.
- (2) During any attack, one or more of the above fundamental methods may be used. As the combat situation changes, it may become necessary to employ a method of attack other than the initial one. The attacking unit must be capable of changing from one method to another as the attack progresses. Although the combinations of these methods may change and the technique of their application vary, the tank must be used in such a manner as to make maximum use of its battlefield mobility, armor protected firepower, speed, and shock action. These characteristics of the tank must be used to carry the fight to the enemy wherever the terrain permits, thereby lightening the combat burden of the infantry.

- (3) The rate of advance of the attack should be the maximum rate permitted by the terrain and the enemy situation. At times, the rate may have to be based on the speed of the infantry. However, all efforts should be made to capitalize on the speed and mobility of the tanks in order to obtain the maximum shock action. In any event, the attack should be so timed that the tank-infantry team arrives on the objective simultaneously in order to afford mutual support, or the tanks should arrive on the objective ahead of the infantry in such a manner that artillery time-fire can be placed over the tanks until the infantry arrives. The latter technique permits the attack to retain the rate of advance of the tanks.
- (4) If the tactical situation demands that the infantry arrive on the objective ahead of the tanks, immediate action must be taken to move the tanks forward to the objective in order to give the infantry the necessary tank support.

b. Tanks and Infantry Attack on the Same Axis (Dismounted Infantry). See figure 21.

- (1) This method of attack is favorable when—
 - (a) There exists only one good avenue of approach for both tanks and infantry.
 - (b) The terrain on this avenue of approach is suitable for maneuver by both tanks and infantry.



Figure 21. (Superseded) Tanks and infantry attack on the same axis.

~~RESTRICTED~~—Security Information

- (2) The techniques of application of this method will vary, depending upon the terrain, fields of fire, obstacles, and the enemy situation. The principal consideration in selecting the particular technique to be applied is the rate of advance which is desirable and possible. Whether the tanks or the infantry leads, or whether the two elements move simultaneously, the tanks must be used in a manner to attain the greatest volume of fire and shock action. Tanks may move well ahead of the infantry, if artillery time-fire is placed over the tanks until the infantry arrives. The following techniques may be employed in this method:
- (a) When visibility, maneuver, and fields of fire are restricted, tanks and infantry should advance within mutual supporting distance of each other. However, when practicable, tanks should lead.
 - (b) When the terrain in front of the line of departure is not immediately favorable or, in order to gain surprise, tanks may initially support by fire while the infantry advances. When the infantry attack has progressed sufficiently, the tanks may then move forward and join the infantry in the final assault, or the tanks may move forward, pass through the infantry, and lead the assault, followed by the infantry.

~~RESTRICTED~~—Security Information

The tanks participate in the seizing of the objective. These techniques must not be confused with the fundamental method of attack titled "Tanks Support by Fire Only."

c. *Tanks and Infantry Attack on Two Converging Axes (Dismounted Infantry)*. See figure 22.

- (1) This method of tank-infantry attack gives the maximum opportunity to achieve surprise and forces the enemy to fight on two fronts. The following conditions favor the adoption of this method:
 - (a) A good avenue of approach for the tanks, but one which would unduly expose the infantry.
 - (b) A good avenue of approach for the infantry, but the terrain restricts the mobility, speed, or firepower of the tank.
- (2) When utilizing this method of attack, the infantry may be alone on one axis and the tanks on another. However, this does not preclude the possibility of using both tanks and infantry on each axis. On one axis may be infantry alone or predominantly infantry supported by tanks and, on the other, tanks alone or predominantly tanks, supported by infantry.
- (3) Although this method usually achieves the maximum surprise, firepower, and shock action and capitalizes on the capabilities of

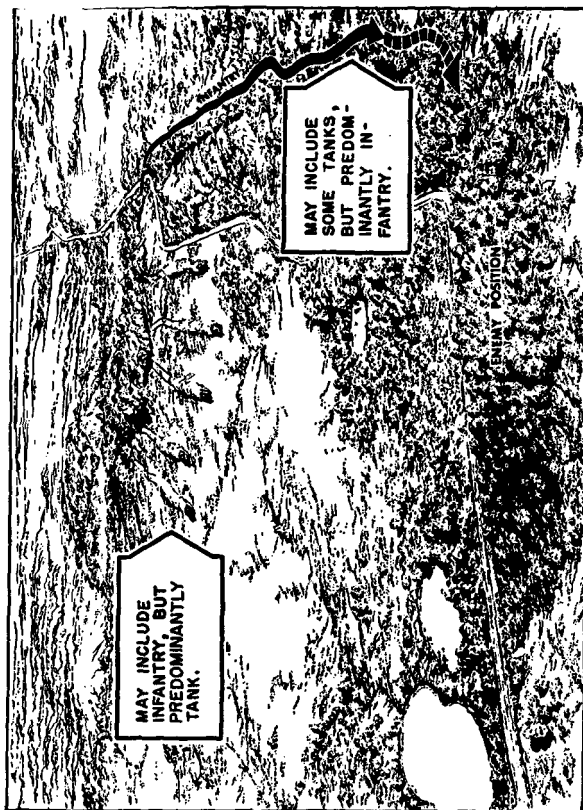


Figure 22. (Superseded) Tanks and infantry attack on two converging axes.

~~RESTRICTED~~—Security Information

each arm, coordination of the assault is more difficult than in other methods. The tank force will normally support the infantry advance by fire until the time arrives for the assault. At this time, both forces converge on the common objective so that they arrive on the objective simultaneously. If one force is composed of tanks alone and the other force of infantry alone, the final assault may be timed so the tanks arrive first, under artillery time-fire, and the infantry follows closely.

d. Tanks Support by Fire Only. See figure 23.

- (1) The following conditions dictate the adoption of this method:
 - (a) Obstacles exist which the tanks will be unable to negotiate until they are cleared, and they cannot be cleared until an objective is seized from which the clearing operation can be protected. Examples: clearing of mine-fields, and river or stream crossings.
 - (b) Ground must be seized which is completely impassable to tanks.
- (2) This is the least desirable of all the methods of attack and should be employed only when the tanks cannot accompany the infantry in the assault. Even though shock action (and to some extent, the firepower) of the tanks is lost, the tanks can be used effectively to

~~RESTRICTED~~

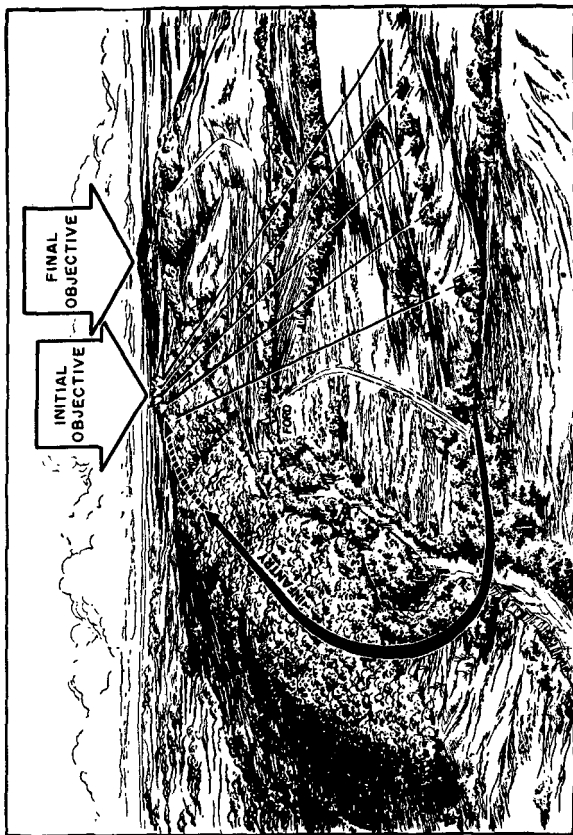


Figure 23. (Superseded) Tanks support by fire only.

~~RESTRICTED~~—Security Information

support the infantry by fire. As soon as the obstacles are breached or a suitable avenue of approach is uncovered, the tanks should rapidly join the infantry on the objective.

e. Tanks With Mounted Infantry. Infantry or armored infantry, when riding in armored personnel carriers, employ the same three fundamental methods of attack in the same manner as the dismounted infantry, but the techniques of application will differ. For a complete discussion and explanation, refer to FM 7-17, FM 17-32, and FM 17-33.

f. Infantry Riding Tanks.

- (1) When the infantry or armored infantry rides the tanks, it is for transportation only and is *not* considered a method of attack. Infantry may ride tanks in the advance to contact and when it is desired to speed the attack to the final assault.
- (2) When infantry is mounted on tanks, the mobility, maneuverability, and firepower of the tank is, of necessity, reduced. In addition, the men on the tanks are extremely vulnerable to all types of fire.

82. General

* * * * *

b. (Superseded) Radio sets described in this chapter come from the new family of frequency modulated sets.

* * * * *

84. Communication Duties of Tank Company Personnel

* * * * *

c. Rescinded.

d. The radio **mechanic** makes periodic preventive maintenance checks and repairs on all of the radio equipment issued to the company. He keeps records * * * operates its radio.

* * * * *

86. Radio Sets Issued to Tank Company (Superseded)

a. *Radio Sets AN/GRC-7 and AN/GRC-8.*

(1) These radio sets are designed to provide radio telephone communication between vehicles and units in all echelons of the tank company, and between all elements of the tank company and infantry units being supported (figs. 35 and 36). The AN/GRC-7 consists of one 10-15 mile receiver-transmitter ("A" set), a one mile receiver-transmitter ("B" set), one auxiliary receiver, and facilities for interphone, retransmission, and remote control operation. The AN/GRC-8 is the same except that the auxiliary receiver is not provided.

(2) The two tanks in company headquarters, the company commander's $\frac{1}{4}$ -ton truck, and the platoon leaders' tanks are equipped with the AN/GRC-7. The individual tanks of

~~RESTRICTED~~—Security Information

the tank company and the platoon leaders' 1/4-ton trucks are equipped with the AN/GRC-8.

- (3) The principal feature of the AN/GRC-7 and the AN/GRC-8 is that they can monitor more than one radio net simultaneously. For example, the platoon leader using his AN/GRC-7 can monitor his company command net, his platoon command net, and the rifle company command net in whose sector he is operating, all at the same time. An individual tank using the AN/GRC-8 can monitor (at the same time) the platoon command net and the rifle company command net in whose sector he is operating. For transmission characteristics of the Radio Sets see table I.

b. Radio Sets AN VRC-10 and AN/VRC-15.

- (1) The radio sets AN/VRC-10 and AN/VRC-15 are basically similar to the radio sets AN/GRC-7 and AN/GRC-8. The AN/VRC-10 and AN/VRC-15 both have one 10-15 mile receiver-transmitter ("A" set) and facilities for remote control operation. In addition, the AN/VRC-15 is equipped with interphone facilities like those on the AN/GRC-7 and AN/GRC-8.
- (2) These radios are found in the maintenance section. The tank recovery vehicle and the armored utility vehicle are equipped with

the AN/VRC-15. The 1/4-ton truck in the section is equipped with the AN/VRC-10.

c. Interphone Facilities of Radio Sets. The interphone facilities of the radio sets permit the crew members to talk with each other within their own tank, tank recovery vehicle, or armored utility vehicle. Crew members may also receive all incoming radio messages. An external telephone is mounted on the rear of the tank to permit communication between troops on the outside of the tank and the crew members inside.

Figure 37. Rescinded.

Figure 38. Rescinded.

Figure 39. Rescinded.

87. Other Means of Communication

a. Wire.

* * * *

- (2) The wire equipment * * * limited wire net. (See fig. 40.) The communication chief or other available personnel install and maintain the wire lines and operate the switchboard.

* * * *

88. Radio Nets

* * * *

e. The "B" set in the radio sets AN/GRC-7 and AN/GRC-8 is used to provide radio communication between tanks and foot troops. The responsibility for * * * of each tank.

Table I. (Added) Characteristics of Radio Sets

Type	Operating range	Type of signal	Channels	Type of operation	Frequency range
AN/GRC-7	"A" Set 15 mi VOICE stationary	FM: VOICE	"A" Set-170 "B" Set-115 Aux Rec-170	Vehicular. (Components of this set are man-transportable when used with Modification Kit MX-898/GR)	"A" Set: 38.0-54.9 mc "B" Set: 47-58.4 mc Aux Rec: 38.0-54.9 mc
	"B" Set 10 mi VOICE moving 1 mi moving or stationary				
AN/GRC-8	"A" Set 15 mi VOICE stationary	FM: VOICE	"A" Set-170 "B" Set-115	Vehicular. (Components of this set are man-transportable when used with Modification Kit MX-898/GR)	"A" Set: 38.0-54.9 mc "B" Set: 47-58.4 mc Aux Rec: 38.0-54.9 mc
	10 mi VOICE moving				
AN/VRC-10 (AN/VRC-15 same as AN/VRC-10 plus interphone amplifier)	"A" Set 15 mi VOICE stationary 10 mi VOICE moving	FM: VOICE	"A" Set-170	Vehicular. ("A" Set is man-transportable when used with Modification Kit MX-898/GR)	"A" Set: 38.0-54.9 mc

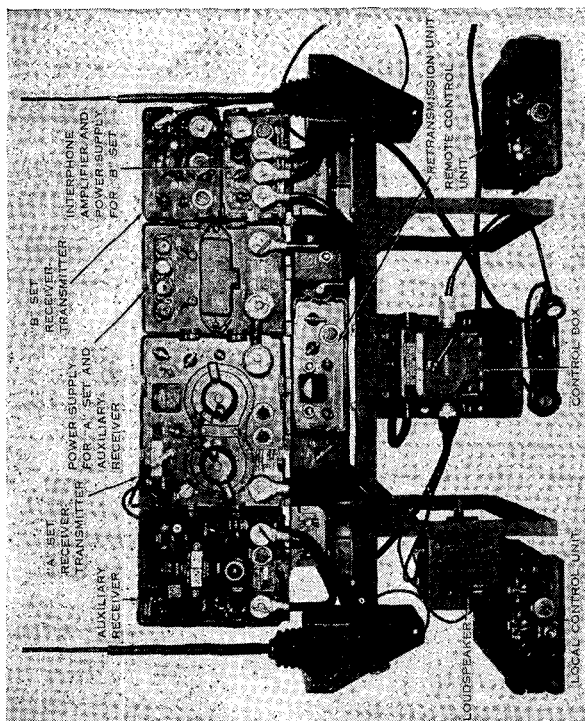


Figure 35. (Superseded) Radio set AN/GRC-7.

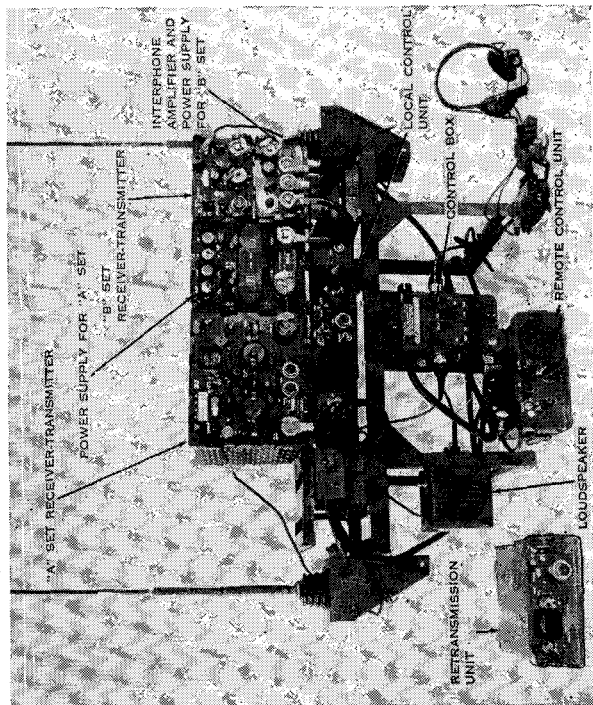


Figure 36. (Superseded) Radio set AN/GRC-8.

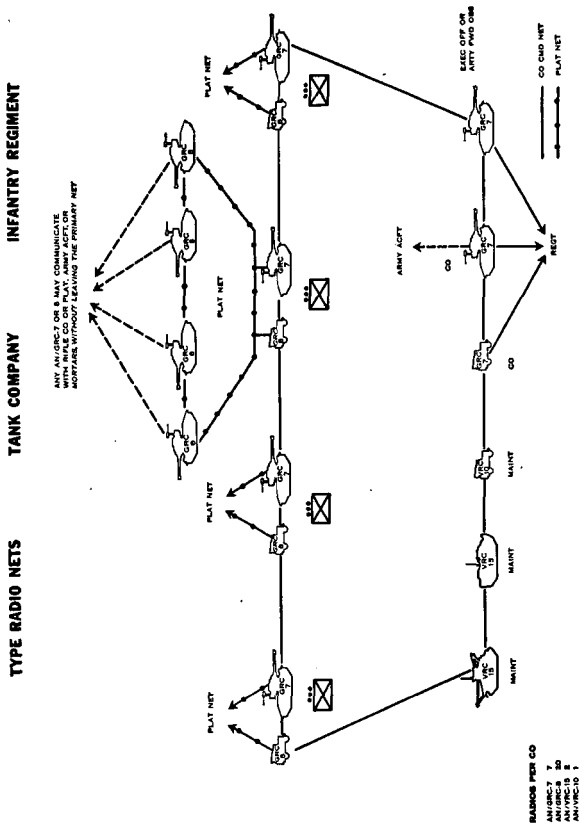


Figure 41. (Superseded) Type radio nets, tank company, infantry regiment.

~~RESTRICTED~~ Security Information

89. Radio Frequencies and Channels

* * * *

b. Rescinded.

91. Operation of Radio Telephone Nets

* * * *

b. Prolonged conversations are * * * observes these rules:

* * * *

(14) If the station * * * minute or two. (The operator might be transmitting on another net.)

96. Radio Maintenance

* * * *

b. Radio maintenance in the tank company includes preventive maintenance performed by the operator (including the tank or vehicle commander) and organizational maintenance performed by the company radio **mechanics**. Maintenance which cannot be performed within the company is done by higher echelon **mechanics**.

* * * *

d. Supervision of radio * * * and command inspection. Preventive maintenance by the radio operator or vehicle commander is checked by the company radio **mechanics**. Within the division * * * and proper installation.

* * * *

f. The company radio **mechanics** keep a record of all radio sets in the company and schedule periodic maintenance checks. These checks are * * * and immediately corrected.

99. Supply Means

a. To effect supply the company commander is assisted by the executive officer (motor officer), the unit administrator, the supply sergeant, the motor sergeant, the mess steward, the communication chief, and other designated personnel.

b. Nonorganic transportation for supplying the company is furnished by the **regimental service** platoon of the service company. This platoon includes * * * tank maintenance section.

100. Class I Supply

* * * * *

b. The kitchen vehicle and mess personnel of the tank company normally are located in the regimental trains area. As a rule, the tank company draws and prepares food for all its elements. When elements of * * * of their men.

102. Class III Supply

* * * * *

c. The fuel and lubricant vehicles of the tank company section of the regimental service platoon draw gasoline from the division or army class III supply point by exchanging empty 5-gallon cans for full ones. At the same time they draw other class III supplies from these supply points. On the march these vehicles, carrying a **reserve supply** of class III supplies, move with the regimental combat trains under control of the regiment. In certain situations, * * * the tank company.

d. When combat is imminent, these vehicles may be moved to the regimental **trains area** and later dispatched to the tank company area, or they may be moved directly to the tank company area for resupply. When final precombat supply has been accomplished, these vehicles are moved to the regimental **trains area** from which they operate. When required for * * * class III supply point.

e. During combat, the * * * by the tank crews. The fuel and lubricant vehicles promptly return with the empty fuel **cans** to the regimental class III supply point. This procedure is * * * units by prearrangement.

* * * * *

103. Class V Supply

* * * * *

b. *Replenishment During Attack.*

- (1) During the approach march, the tank company ammunition vehicles of the regimental service platoon, carrying a basic load of ammunition, normally move as a part of the regimental trains. When contact is * * * ammunition supply point.

* * * * *

c. *Replenishment During Defensive Operations.*

In the defense, * * * to each tank. When the required amount has been placed at the position, the trucks' loads are promptly replenished and they are held at the regimental **trains area** or the regimental ammunition supply point until needed.

* * * * *

~~RESTRICTED~~—Security Information

f. Company Ammunition Supply Point. The company ammunition supply point, **when established**, is operated by the supply sergeant, **and** is located near the company command post to take advantage of the company communication net. Vehicles going to * * * of friendly identification.

104. Organization for Maintenance and Recovery

a. The tank maintenance section of the regimental service platoon is organized **and equipped to recover tracked vehicles and** to perform organizational maintenance on tanks and vehicular armament.

* * * * *

106. Vehicular Maintenance

a. The company commander is responsible for organizational maintenance including the scheduling of preventive **maintenance** procedures.

* * * * *

109. Supporting Maintenance

- * * * *

b. Initially the regimental tank maintenance section is in the regimental **trains area**. Thereafter, it closely * * * the tank company.

113. Evacuation

The battalion medical * * * battalion aid station. The regimental surgeon arranges for the evacuation of casualties of tank elements not attached to battalions **or the tank company evacuates its own casualties to the regimental collecting station.**

[AG 300.7 (15 Jul 53)]

~~RESTRICTED~~—Security Information

BY ORDER OF THE SECRETARY OF THE ARMY:

M. B. RIDGWAY,
General, United States Army,
Chief of Staff.

OFFICIAL:

WM. E. BERGIN,
Major General, United States Army,
The Adjutant General.

DISTRIBUTION:

Active Army:

Tech Svc (1); Tech Svc Bd (1); AFF (15); AA
Comd (2); OS Maj Comd (50); Base Comd (5);
MDW (2); Log Comd (2); A (5) except 7th (25);
CHQ (2); Div (5); Brig (2); Regt 7 (10); Bn 7
(5); Co 7 (3); FT (1); USMA (50); Sch (10);
PMS&T 7 (1); Tng Div (5); RTC (3); Mil Mis
(1); Arma (1); T/O & E 7-37A (10).

NG: Same as Active Army except one copy to each unit.

Army Reserve: Same as Active Army except one copy to
each unit.

For explanation of distribution formula, see SR 310-90-1.

~~RESTRICTED~~—Security Information

WARNING NOTICES

Authority for release of this document to a foreign government must be secured from the Assistant Chief of Staff, G-2, Department of the Army.

When this document is released to a foreign government, it is released subject to the following conditions: This information is furnished with the understanding that it will not be released to another nation without specific approval of the United States of America, Department of the Army; that it will not be used for other than military purposes; that individual or corporation rights originating in the information whether patented or not will be respected; and that the information will be afforded substantially the same degree of security as afforded by the United States of America, Department of the Army.

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U. S. C., sections 793 and 794. The transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

~~RESTRICTED~~

~~RESTRICTED~~

(1)

FM 7-35

C 1

FIELD MANUAL

TANK COMPANY, INFANTRY REGIMENT

CHANGES } DEPARTMENT OF THE ARMY
No. 1 } WASHINGTON 25, D. C., 24 October 1951

FM 7-35, 20 June 1949, is changed as follows:

4. DUTIES OF COMPANY OFFICERS

A. *Company Commander.*

* * * * *

- (6) (Added) The company commander or any other person in a position to observe shelling or bombing by a hostile force reports this information without delay to the counterfire information officer at regimental headquarters. While reports may be given directly to forward artillery observers, the individual so reporting is not relieved of responsibility to forward such reports to the counterfire information officer. These reports aid in locating hostile artillery, rocket, and mortar shelling, and bombing. This information is evaluated and acted upon by higher headquarters (app. III).

* * * * *

~~RESTRICTED~~

~~RESTRICTED~~

26. SECURITY OF ASSEMBLY AREA

* * * * *

c. (Added) The company employs several measures for protection against chemical, biological, and radiological attack. Unit equipment is used to detect and identify contaminations, and special clothing and equipment provide protection. In addition, the company commander seeks to minimize casualties from contamination by avoiding contaminated areas, by decontaminating necessary paths, or by restricting operations to the shortest possible time in contaminated areas. (See FM 21-40.)

- (1) The company commander is assisted in the protection of the unit by specially trained company personnel who perform these functions in addition to their other duties.
- (2) The company chemical defense officer assists in training the company in defensive measures against contaminating materials. He advises the company commander regarding defensive measures and the effect of contamination on the tactical situation. He supervises the company chemical defense noncommissioned officers. He supervises the supply and maintenance of special clothing and equipment, and he supervises intelligence activities that pertain to chemical, biological, and radiological matters.
- (3) A minimum of two company chemical defense noncommissioned officers are ap-

~~RESTRICTED~~

~~RESTRICTED~~

pointed to assist the company chemical defense officer in the execution of his duties.

- (4) At least one qualified alternate is appointed for each chemical defense officer and chemical defense noncommissioned officer.

APPENDIX III

HOSTILE SHELLING AND BOMBING REPORTS (Added)

1. GENERAL

Shelling reports (SHELREP), mortar reports (MORTREP), and bombing reports (BOMREP) provide valuable information to intelligence personnel of the disposition, activities, location, capabilities, and intent of hostile forces.

a. By making a detailed analysis of shelling reports (SHELREP) and mortar reports (MORTREP), the regimental counterfire information officer and the artillery intelligence officer obtain intelligence which can be used to locate hostile weapons and to direct effective counterfire.

b. Bombing reports (BOMREP) provide valuable information to the intelligence sections of higher headquarters, both air and ground. They can be used to prepare enemy air order of battle studies and situation maps. After collation and analysis, they may indicate enemy air capabilities and intent as well as new developments, tactics, and doctrine.

c. The standard form listed below is used when making a shelling, mortar, or bombing report:

~~RESTRICTED~~

RESTRICTED

SHELREP, MORTREP, BOMREP (state which)

- A. From (unit, use current call sign or code name).
- B. Position of observer—map reference preferred (code if map reference is used).
- C. Grid or magnetic (state which) bearing or azimuth of flash or sound or groove of shell (state which) in mils or degrees (state which) (omit for aircraft).
- D. Time shelling began.
- E. Time shelling ended.
- F. Area shelled, mortared, or bombed (clear map reference preferred).
- G. Number and nature of guns, mortars, or aircraft.
- H. Nature of fire (registration, bombardment, harassment, etc.) (omit for aircraft).
- I. Number and type of shells, bombs, etc.
- J. Time of flash to bang (omit for aircraft).
- K. Damage.

2. REPRODUCTION IN FIELD MESSAGE BOOK

The report form shown in paragraph 1 of this appendix is printed on the inside cover of field message books. (Field message books that do not have the form can be modified by typing this form on a piece of gummed paper and pasting it to the book cover.)

3. TRANSMISSION

a. Speed is essential to counterbattery and counter-mortar action; reports are transmitted by the best

RESTRICTED

~~RESTRICTED~~

available means, using the form given in paragraph 1 of this appendix.

b. Each report is preceded by one of the following code words:

- (1) SHELREP (for enemy artillery fire).
- (2) MORTREP (for enemy rocket or mortar fire).
- (3) BOMREP (for enemy air attack).

c. Each paragraph of the report is identified by a specific capital letter for ease and speed in transmission. No part of the form is transmitted except the code title, the identifying paragraph letters, and fill-in information.

d. The message is transmitted in the clear except for—

- (1) The unit (par. A of the report form), for which the current call sign or equivalent can be used when the message is sent by radio.
- (2) The location of the observer (par. B of the report form), if the map reference discloses the location of a headquarters or an important observation post.

e. Paragraphs of the form that cannot be completed or that are not applicable are omitted in the transmission of the report.

[AG 300.7 (8 Oct 51)]

BY ORDER OF THE SECRETARY OF THE ARMY:

OFFICIAL:

WM. E. BERGIN
Major General, USA
The Adjutant General

J. LAWTON COLLINS
Chief of Staff
United States Army

AGO 1315C

~~RESTRICTED~~

~~RESTRICTED~~

DISTRIBUTION:

Tech Svc (1); Arm & Svc Bd (1); AA Comd (2); OS
Maj Comd (50); Base Comd (5); MDW (2); Log
Comd (2); A (20); CHQ (2); D (5); B (2); R 7
(10); Bn 7 (5); C 7 (3); FC (1); USMA (50); Sch
(10); RTC (3); Mil Mis (1); ARMA (1); T/O & E,
17-37N (10). Special Distribution.

For explanation of distribution formula see SR 310-90-1.

~~RESTRICTED~~

DEPARTMENT OF THE ARMY FIELD MANUAL
FM 7-35

This manual supersedes FM 7-35, 15 March 1944, including C 1, 13 November 1944, and C 2, 13 February 1946.

TANK COMPANY
INFANTRY REGIMENT



DEPARTMENT OF THE ARMY • JUNE 1949

RESTRICTED. DISSEMINATION OF RESTRICTED MATTER.—No person is entitled solely by virtue of his grade or position to knowledge or possession of classified matter. Such matter is entrusted only to those individuals whose official duties require such knowledge or possession. (See also AR 380-5.)

United States Government Printing Office
Washington: 1949

DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., 20 June 1949

FM 7-35, Tank Company, Infantry Regiment, is published for the information and guidance of all concerned.

[AG 300.7 (24 Mar 49)].

BY ORDER OF THE SECRETARY OF THE ARMY:

OFFICIAL: OMAR N. BRADLEY
 Chief of Staff, United States Army
EDWARD F. WITSELL
 Major General
 The Adjutant General

DISTRIBUTION:

Tech Sv (2); Arm & Sv Bd (1); OS Maj Comd (2); MDW (2); A (ZI) (20), (Overseas) (5); CHQ (2); D (5); B (2); R7 (10); Bn 7 (5); C 7 (3); USMA (50); Sch (10) except Inf (1500); ROTC (1); Tng Ctr (3); T/O & E 17-37N (10); SPECIAL DISTRIBUTION.

For explanation of distribution formula, see SR 310-90-1.

CONTENTS

	Paragraph	Page
CHAPTER 1. INTRODUCTION	1-8	1
CHAPTER 2. OFFENSIVE TACTICAL MOVEMENTS		
<i>Section I.</i> Movement to contact.....	9-12	17
II. Marches	13-22	19
III. Positions and installations .	23-32	29
CHAPTER 3. OFFENSIVE OPERATIONS		
<i>Section I.</i> Tank employment and forma- tions	33-37	43
II. Infantry-tank team.....	38-66	51
CHAPTER 4. DEFENSIVE OPERATIONS		
<i>Section I.</i> Tank company.....	67-70	98
II. Tank platoon.....	71-76	101
III. Retrograde movements.....	77-81	111
CHAPTER 5. SIGNAL COMMUNICATION.	82-97	118
CHAPTER 6. SUPPLY, MAINTENANCE, VEHICULAR RECOVERY AND MEDICAL SERVICE		
<i>Section I.</i> Supply	98-103	143
II. Maintenance and vehicular recovery	104-109	148
III. Medical service.....	110-115	153
CHAPTER 7. TRAINING		
<i>Section I.</i> Purpose and sequence.....	116-117	156
II. Individual training.....	118-121	157
III. Unit training.....	122-123	158
IV. Combined training.....	124-125	158
APPENDIX I. UNIT TRAINING PROGRAM.....		160
II. REFERENCES		189
INDEX		190

~~RESTRICTED~~

This manual supersedes FM 7-35, 15 March 1944, including C 1, 13 November 1944, and C 2, 13 February 1946.

CHAPTER 1

INTRODUCTION

1. PURPOSE. This manual is a guide for the tactical employment of the tank company, infantry regiment. The procedures set forth herein are flexible.

2. MISSIONS AND CAPABILITIES OF TANK COMPANY. **a.** The missions of the tank company are to close with and destroy the enemy and to provide antitank protection for the regiment. The company does this by using its fire power, mobility, and shock action in close support of the rifle elements of the regiment. The company's primary concern is to assist the progress of the rifle units, so it normally joins with the companies and battalions of the regiment to form hard-hitting infantry-tank teams. The tank company is capable of:

- (1) Attacking or counterattacking under hostile fire.
- (2) Destroying enemy armor by fire.
- (3) Supporting infantry or tanks by direct fire, maneuver, and shock action.
- (4) Exploiting a break-through.

b. When a commander considers the means available for accomplishing a mission, he decides whether it can be accomplished most efficiently by infantry alone,

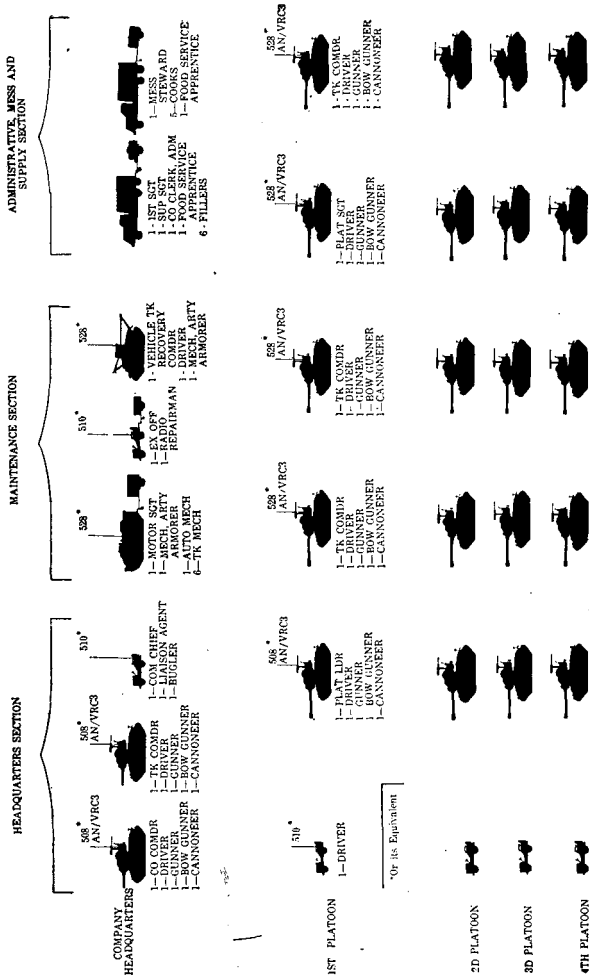


Figure 1. Organization of tank company, infantry regiment.

by infantry supported by tanks, or by tanks supported by infantry. He considers the capabilities of tanks, and insures that tanks are employed in effective strength at the point where they can best influence the operation.

3. ORGANIZATION OF TANK COMPANY.

(See figure 1.) The tank company, infantry regiment, consists of a company headquarters and four tank platoons.

a. The company headquarters is divided into three sections:

- (1) The headquarters section includes the company commander and enlisted personnel who assist him with his tactical functions. It is equipped with two M45 tanks, mounting 105-mm howitzers, and one $\frac{1}{4}$ -ton truck. (See fig. 2.)
- (2) The maintenance section includes personnel who repair and maintain the company's equipment. It is supervised by the executive officer, who is also the company motor officer. It is equipped with an armored tank-recovery vehicle, an armored utility vehicle, and a $\frac{1}{4}$ -ton truck.
- (3) The administrative, mess, and supply section includes the first sergeant, company clerk, supply personnel, and mess personnel. It is equipped with two $2\frac{1}{2}$ -ton trucks.

b. The tank platoon includes the platoon leader, tank crewmen, and a truck driver. It is equipped with five tanks and a $\frac{1}{4}$ -ton truck. (See fig. 3.) The platoon is organized tactically into two sections. The first section of three tanks includes the platoon leader's tank. The second section of two tanks includes the

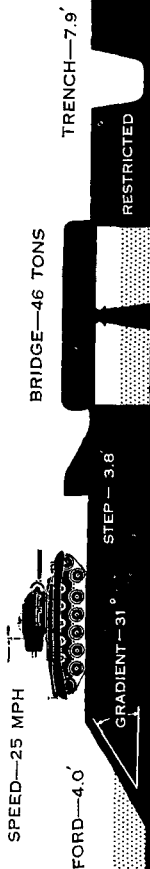
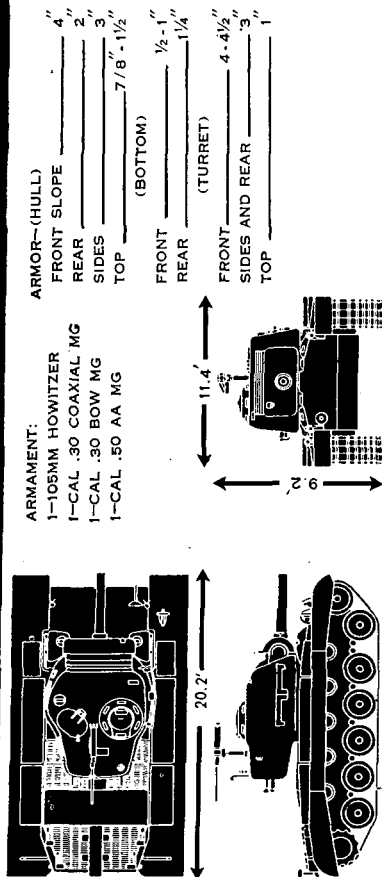


Figure 2. M45 tank.

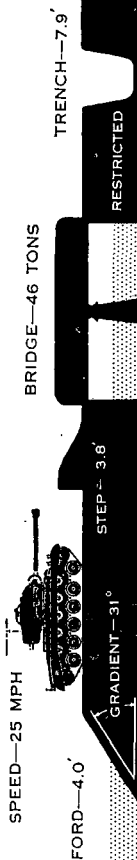
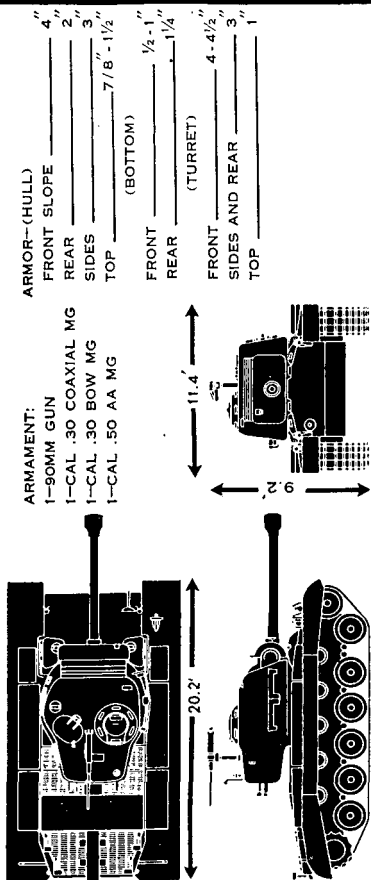


Figure 3. M26 tank.

platoon sergeant's tank. The $\frac{1}{4}$ -ton truck is used by the platoon leader for liaison, reconnaissance, emergency supply, and evacuation. It accompanies the platoon as long as possible. Sometimes combat conditions or terrain make it impossible for the truck to remain with the platoon. The truck then accompanies the tank company headquarters group, or it accompanies the infantry unit to which the tank platoon is attached.

4. DUTIES OF COMPANY OFFICERS. a. Company commander.

- (1) The company commander commands his company. By his character and skill, he gives positive leadership to his command and maintains its discipline, welfare, and contentment. He actively supervises the training of all elements of his company and insures proper administration and the procurement and maintenance of equipment. To assist him in carrying out these responsibilities he makes full use of the company's chain of command. In assigning duties to his leaders, he considers their individual capabilities and personalities. In his leaders he develops a high degree of initiative and personal responsibility—building his company into a well coordinated team.
- (2) He continually estimates the situation, having in mind all practicable courses of action. By directive, or by recommendation to his commander, he initiates action on any matter pertaining to his company, and follows this action through by vigorous execution of the most simple effective course until his mission is accomplished.

- (3) To accomplish his mission, he uses all means at his command and requests additional means whenever they can be well used in his area of responsibility. Without awaiting orders he coordinates with any other unit or agency.
- (4) In the battle area he uses observation, patrols, liaison, and personal reconnaissance to maintain security and prepare for future operations. He assigns definite missions to his leaders, and keeps informed of their actions in order to give assistance when needed and to insure the success of his plan. He goes where he can best control the action of his company as a whole, yet at critical times he is personally present where he can best influence the action. He alone is responsible to his commander for all that his company does or fails to do.
- (5) The tank company commander is also the regimental tank and antitank officer, which makes him a regimental staff officer.

b. Executive officer. The executive officer (motor officer) is second-in-command of the tank company. He keeps abreast of the situation and is prepared to replace the company commander. The executive officer is responsible to the company commander for the operation of the command post and for all maintenance functions within the company. By close supervision of maintenance, frequent spot checks and inspections, he assures himself that proper maintenance procedures are carried out. He maintains liaison with the regimental motor officer who provides technical advice, assistance in the recovery and repair of company vehicles, and aid in the procurement of needed spare parts. (See par. 105.)

c. Platoon leader. The platoon leader trains his platoon and leads it in combat. To maintain efficiency and a high state of morale in his unit, he becomes thoroughly familiar with the personalities and capabilities of his men. As tank platoon leader he is also a member of his tank crew—performing the duties of a tank commander. He is responsible for the efficient execution of duties by the crews of his platoon. By frequent inspections and spot checks, he assures himself that the vehicles are given the required maintenance to operate at maximum efficiency.

5. DUTIES OF COMPANY HEADQUARTERS NONCOMMISSIONED OFFICERS.

a. Company headquarters section.

- (1) The *communication chief* is the company commander's primary assistant in communication matters. (For detailed duties, see par. 84.)
- (2) The *liaison agent* performs liaison duties between the tank company and the infantry regiment or infantry battalion.
- (3) The *bugler*. (For duties, see par. 84.)

b. Maintenance section.

- (1) The *motor sergeant*, operating under the supervision of the executive officer (motor officer), is in charge of all vehicular maintenance performed by the company. (For detailed duties, see par. 106.)
- (2) The *tank mechanics* are trained and equipped to work on the company's tracked vehicles.
- (3) The *automotive mechanic* is trained and equipped to work on the company's wheeled vehicles and to assist the tank mechanics.
- (4) The *artillery-armorer mechanics* repair the

tank cannon, machine guns, and individual arms. They maintain adequate tools, spare parts and accessories for the timely repair of these weapons. They also distribute spare parts to the tank crews. This keeps the spare parts in each vehicle at the authorized level. (See par. 108.)

(5) The *radio repairman*. (For detailed duties, see par. 84.)

(6) The *vehicle tank recovery (VTR) crew* consists of a driver and a vehicle commander. They may be supplemented by other members of the maintenance section. The crew uses the lifting, towing, and winching ability of the recovery vehicle for various maintenance jobs—including battlefield recovery.

c. Administrative, mess, and supply section.

(1) The *first sergeant* assists the company commander in administrative duties. He is in charge of the command post when no officers are present.

(2) The *mess steward* supervises the cooks in the preparation and distribution of meals.

(3) The *supply sergeant* draws, checks, issues, and accounts for supplies other than rations and motor parts.

(4) The *company clerk*, the first sergeant's administrative assistant, helps keep the company records.

(5) The *cooks* prepare and serve the meals under the supervision of the mess steward.

6. TANK CHARACTERISTICS. Tanks are characterized by good battlefield mobility, armor-protected

fire power, and capacity for shock action. These characteristics enable them to materially assist infantry action. Tanks can move over ground which may not be passable to wheeled vehicles. Tank weapons are capable of delivering a saturating volume of small-arms fire, as well as the accurate, penetrating fires of their large guns. They can be fired effectively even though the enemy is striking the tank with small-arms fire and shell fragments. Tanks in the infantry-tank team have a strong psychological shock effect upon the enemy. This results from the concentrated assault of the combined heavy fire power and forward movement of the tanks as they close with the enemy.

7. FACTORS AFFECTING TANK EMPLOYMENT.

a. Inherent factors.

- (1) The tank's *weight and size* increase the difficulty of its movement over unfavorable terrain. Bridges and soft ground are reconnoitered to insure that they will support the tank; it is frequently necessary to reinforce bridges or to corduroy stretches of soft terrain. For river crossings and amphibious landings, it is necessary to have boats or rafts capable of carrying the tank.
- (2) The *large silhouette* of the tank makes it relatively easy to detect, especially when it is moving in the open or on the skyline.
- (3) The *noise of the tank engine, tracks, and power train* warn an alert enemy. This noise often can be heard for several miles—especially at night. Drivers are trained to drive as quietly as possible when close to the enemy,

and rapid acceleration is avoided. By the use of artillery, tank noise can be partially disguised, making it difficult for the enemy to determine the number of tanks or their exact direction of movement.

- (4) The *armor* restricts the tank crew field of view when the tank is operated with all hatches closed. This causes difficulty when the tank is moving or firing, or during conditions of poor visibility, such as at night, or in dust, fog, rain, or snow.

b. Other factors.

- (1) In the employment of tanks, careful consideration of the *terrain* frequently makes the difference between success or failure. Some types of terrain favor the employment of tanks while other types restrict their use. Tanks operate most effectively over rolling terrain where their full cross-country mobility can be used. Swamps, unfordable streams, dense woods, heavily eroded terrain, steep slopes, and vegetation which limits visibility are all factors which restrict tanks. However, this does not mean that tanks are useless or should not be used over unfavorable terrain.
- (2) *Weather* is another factor which affects the use of tanks. Rain often renders otherwise good tank terrain so boggy that the tanks are restricted to roads. Tanks can frequently move over ground covered with deep snow where most other vehicles cannot operate. Ice makes roads and slopes slippery. Extreme heat and humidity reduce the efficiency of tank

crews and cause excessive track wear and engine heating. Even though adverse weather conditions make successful tank employment difficult, tanks are used under these conditions to secure surprise.

- (3) *Mines* are easy to lay and are always considered when planning a tank attack. Routes are carefully reconnoitered. The best avenues of approach are usually the ones most likely to be mined; therefore, consider attacking over less desirable terrain. Often a thorough reconnaissance and a reasonable amount of pioneer work make a surprise attack over poor terrain both practicable and effective.
- (4) *Tanks consume large volumes of fuel, lubricants, and ammunition.* The tonnage of these supplies, especially gasoline and ammunition, requires cargo trucks to move as far forward as possible. In forward areas, $\frac{1}{4}$ -ton trucks may be used to resupply individual tanks. Since a tank carries only a limited number of rounds of ammunition, tank commanders know their supply status at all times. The platoon leaders and company commander keep informed of the ammunition status. They consider this factor in their plans for tactical employment, making timely arrangements for resupply.
- (5) A tank requires *adequate and continuous maintenance.* Commanders allow sufficient time for their tank crews to perform necessary maintenance.

8. FUNDAMENTALS OF TANK EMPLOYMENT —INFANTRY-TANK TEAM. a. Surprise.

Surprise may be obtained by striking the enemy at an unexpected time, from an unexpected direction, or with unexpected strength. Rapidity of concentration, speed of movement, and the use of covered approaches also assist in gaining surprise. Advantage is taken of all battlefield activity, such as artillery fire and aircraft sounds to disguise tank noises. Tank drivers and other crewmen assist in obtaining surprise by careful driving, fire discipline, and radio discipline. The resistance of even seasoned troops is greatly reduced by the element of surprise.

b. Concentration of effort.

- (1) Fire power is concentrated on the enemy to obtain the maximum shock effect. Tank units avoid piecemeal attacks, and simultaneous attacks of several separated points. Objectives are attacked and reduced one at a time. (See Fig. 4.)
- (2) Tanks are used in the maximum-sized units consistent with their availability, the nature of the terrain, the mission, and the enemy capabilities. This insures continuous pressure, mutual fire support, and shock action.
- (3) In special operations, tank sections may be temporarily attached to rifle platoons. This type of operation includes combat in woods, jungles, mountains, towns, pill-box areas, and situations which do not favor platoon or company employment.

c. Fire and maneuver. Tanks in the open are vulnerable. Restricted visibility resulting from movement and dust make engagement of targets extremely

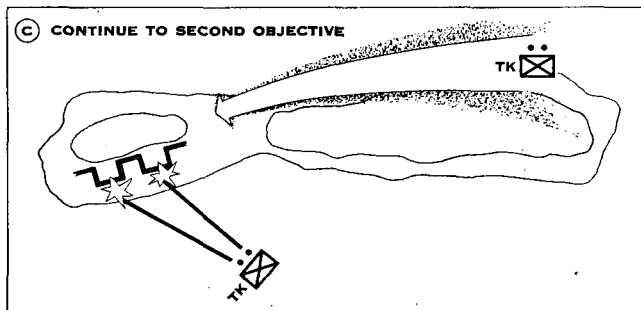
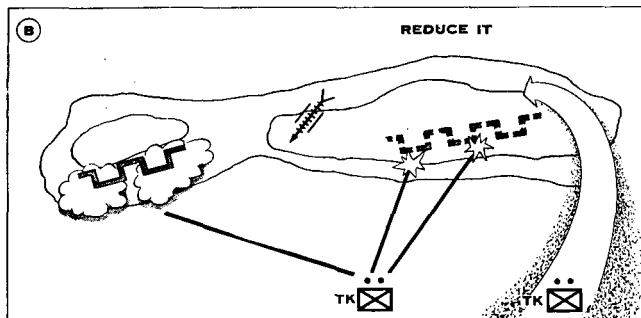
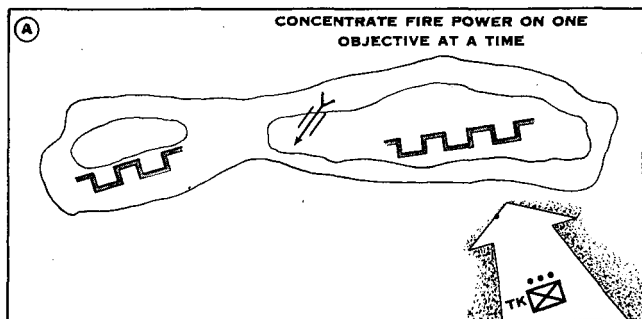


Figure 4. Tanks concentrate their effort (fire power).

difficult. To decrease this vulnerability, tank units advance by fire and maneuver covered by a base of fire from all available weapons. At times, especially when the enemy is known to employ skillfully concealed dug-in tanks, one element of tanks may be used to reinforce this base of fire. Reinforcing tanks take advantage of covered or concealed firing positions. Ideal objectives for the advancing tanks lie within effective observation of the crews of the overwatching tanks. Observation rather than the range of the tank gun usually determines the limit of effective support. When the objective lies beyond the range of effective support, the overwatching tanks advance by bounds to maintain support. (See fig. 5.)

d. Security. Continuous security prevents surprise. This is done by placing the tank company in areas secured by other troops, by using natural or artificial obstacles, and by maintaining constant observation and alertness. The tank company may put out dismounted outposts, or it may keep one man alert in each tank turret. Security is not to be confused with caution or timidity; a tank unit commander acts aggressively, but he provides for security at the same time.

e. Teamwork. Tank unit commanders work in close conjunction with other unit commanders. Each understands that only by teamwork will their combined efforts achieve maximum success. Teamwork is obtained by combined training, by maneuvers, and by employing the same units together whenever possible.

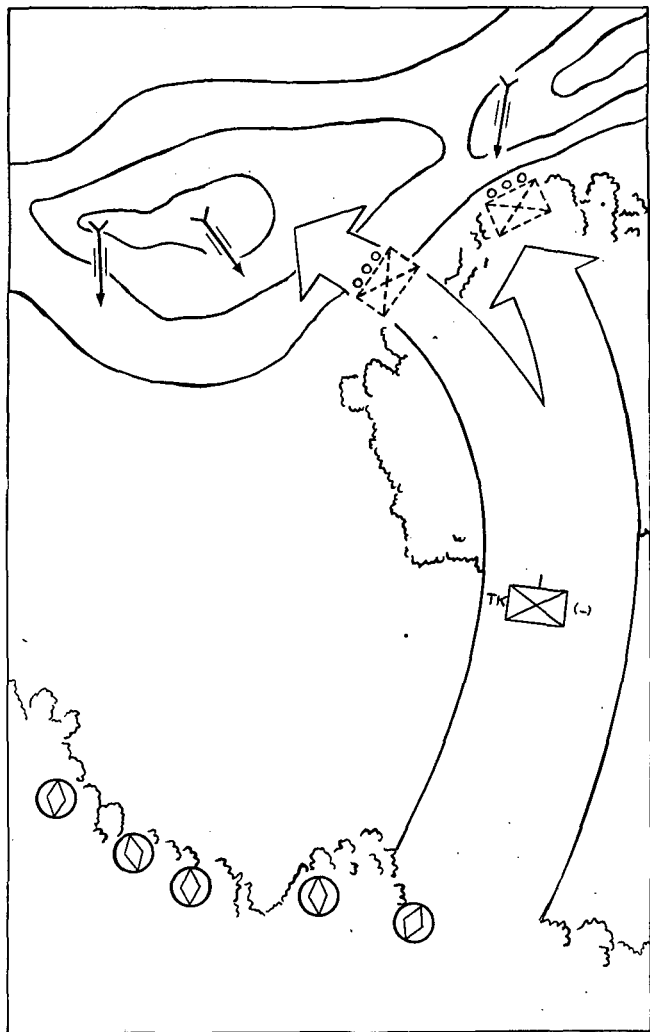


Figure 5. Tanks advance by fire and maneuver—actions of stationary and moving elements.

CHAPTER 2

OFFENSIVE TACTICAL MOVEMENTS

Section I. MOVEMENT TO CONTACT

9. CHARACTERISTICS OF MOVEMENT TO CONTACT. Movement to contact is that ground movement conducted in a theater of operations preliminary to combat to place troops in a position to close with the enemy. Movements to contact are classified as uncovered and covered.

a. An uncovered movement to contact is made when inadequate security or no security is provided by friendly forces. It ends when direct ground contact with the enemy is gained, when a defensive position is occupied, or when enough information of the enemy is obtained to warrant launching an attack.

b. A covered movement is one made behind an adequate screen of security.

10. PHASES OF MOVEMENT TO CONTACT. **a.** Movement to contact normally is conducted in three successive phases, determined by the commander's estimate of the situation—

- (1) *First phase*—enemy direct ground action is remote.
- (2) *Second phase*—enemy direct ground action is improbable.
- (3) *Third phase*—enemy direct ground action is imminent.

b. The commander makes a continuous estimate of the situation to suitably dispose the units of his column

at the proper time and place to meet the situations described. The phases are not designated in the movement order. The passage from one to another is indicated when the commander in his running estimate of the situation is warned that the imminence of contact has so increased as to require corresponding increase in readiness for action.

11. FORMATIONS USED IN MOVEMENT TO CONTACT.

a. Route column is used during the first phase when contact is remote and administrative considerations govern. In route column, the company moves as a unit, normally by rail or tank transporter. Route column terminates when the higher commander decides to group his units tactically before continuing the movement.

b. Tactical column is used during the second phase when contact is improbable; both tactical and administrative considerations govern. Units are tactically grouped. This facilitates the prompt adoption of combat formations and the orderly occupation and departure from an assembly area. The tank company may move as a unit, or its platoons may be attached to infantry battalions. Tactical column terminates when the company starts the approach march or when it occupies an assembly area or attack position.

c. Approach march is used during the third phase when contact is imminent and tactical considerations govern. Elements of the command whose contact with the enemy is imminent are deployed in a suitable tactical formation. Other elements of the command continue in tactical column until they in turn must move in approach march because contact with the enemy has become imminent. Any formation appropriate to the

situation may be used. The approach march ends when ground contact is made with the enemy or when an attack position is occupied.

12. CONTROL DURING MOVEMENT TO CONTACT. Tactical and administrative control of the company during the movement to contact depends primarily upon communication.

a. A march objective is a recognizable feature, such as high ground, a road junction, a stream, or similar feature, toward which the march of a single column is directed.

b. A phase line is a line generally perpendicular to the direction of advance which passes through the march objectives of several columns marching generally abreast. Commanders report to the next higher commander when a phase line is reached. Columns may continue to the next phase line in compliance with previously issued orders, or they may be directed not to go beyond a given phase line until a particular event. As a means of control and coordination, phase lines are ordinarily prescribed by the regimental commander. Distances between phase lines depend upon the type of movement, the character of terrain, the conditions of visibility, and the imminence of contact with the enemy. When phase lines are not prescribed in the regimental order, the company may be required to report its progress at stated intervals. In this case the company commander prescribes his own phase lines.

Section II. MARCHES

13. PURPOSE OF MARCH. The purpose of a march is to move from one location to another, arriving at the correct time with personnel and equipment in the

best possible condition and ready for combat. This requires thorough planning, aggressive leadership, and constant supervision during the movement.

14. WARNING ORDER. **a.** The warning order is issued prior to the detailed march order. It alerts the troops and gives them time to prepare for the march. The warning order is issued as soon as information of the contemplated movement is received. Upon receipt of the warning order, the company and regimental maintenance personnel coordinate the preparation of all vehicles for the march.

b. At this time the company motor officer plans for the repair or evacuation of vehicles during the march.

15. PLANNING AND RECONNAISSANCE

Marches are carefully planned; routes are reconnoitered. After receiving the warning order for a movement, the tank company commander gets all available information concerning the route of march. His sources of information include reports from higher headquarters, maps, and air and ground reconnaissance. If time permits, the company commander and platoon leaders make a detailed ground reconnaissance of the selected route.

16. COMPANY MARCH ORDER. After receiving the regimental march order, the tank company commander completes his plans and preparations. He then issues the company march order to his platoon leaders and other key personnel. The march order includes information on—

a. The destination.

b. The route. This may be shown by route numbers, road names, or points through which the route

passes. The order may be supplemented by overlays showing the route.

c. The order of march. The order of march is based on the regimental march order. The tank company commander prescribes the order of march for elements of the tank company.

d. The initial point (IP). This is an easily recognizable point at which a column is formed by the successive arrival and passage of its elements. The initial point is located near the area from which the unit departs. It is along the route of march, and located so that no unit or vehicle is required to countermarch or move through the area or column of another unit to pass it. An example of a good initial point is a road junction or crossroads. (See fig. 6.) The march order specifies the time at which the leading element of the column passes the initial point.

e. The rate of march. This is governed by the speed of the slowest vehicles in the column. During daylight on good roads this rate is 12 miles per hour for columns containing medium or heavy tanks. For night marches without lights, the rate is reduced to 10 miles per hour on good roads.

f. The distance. This is the distance maintained between vehicles in the column. This may be prescribed in the unit SOP (standing operation procedure). Either open or close column may be used. During darkness the distance between vehicles depends upon the driver's visibility of the vehicle in front of him.

g. Security measures. The company guards against air attack during the march and at the halt by placing an air sentry on each vehicle, and by continuously manning the antiaircraft machine guns. Air security is checked by officers moving along the column.

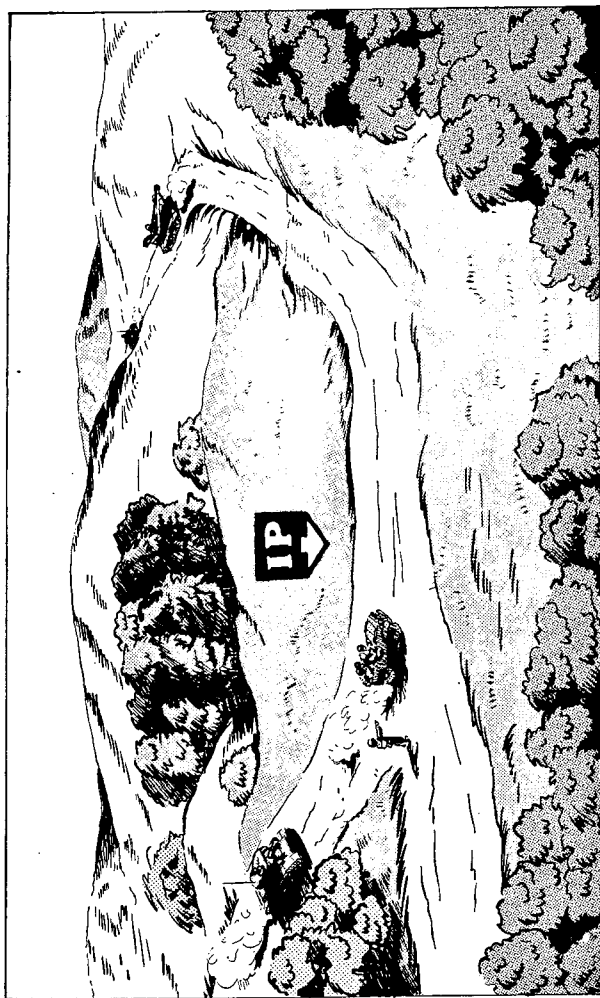


Figure 6. Units cross IP at the proper time and without halting.

In addition to active security, passive security includes the dispersion of vehicles and the maintenance of proper distances during movement and at the halt. All vehicles avoid closing up at halts, at obstacles, and at traffic bottle necks. The activity of enemy signal intelligence may necessitate strict observance of communication security measures.

h. Means of communication. (This may be covered in the SOP.) Radio silence often is prescribed; however, radio receivers are tuned to the company frequency so early warning may be received in case of air or ground attack.

i. Halts. (These also may be covered in the SOP.) When the company is marching alone, a scheduled halt of 15 minutes is made 45 minutes after the leading element of the column crosses the IP. Thereafter, 10-minute halts are made each hour, or 15-minute halts are made every 2 hours. All vehicles halt during this period, and they make no attempt to close up gaps in the column. Vehicular crews perform their scheduled at-the-halt maintenance. A definite crew procedure is used so a quick, practical, and methodical inspection is made of all parts of the vehicle.

j. Location of company commander. In his $\frac{1}{4}$ -ton truck, the tank company commander goes wherever he can best control his command. The march order specifies the location of his command tank, to which he periodically returns.

k. Supply. The main supply consideration for a tank unit on the march is refueling. This is accomplished at a halt prescribed in the march order. The distance traveled between refueling halts is governed by fuel consumption, but does not exceed 75 miles. In prescribing refueling halts, the terrain, weather, and

state of maintenance are considered. Trucks from the tank company section, regimental service company, distribute full 5-gallon gasoline containers along the column, and collect empty containers on their return trip.

17. OPEN COLUMN. In open column the vehicle density varies from 10 to 24 vehicles per mile. The density and the distance between vehicles is independent of the speed, and is specified in the march order. The vehicles are more widely dispersed than in close column, providing more security against enemy attack. The open column is used in tactical moves made during daylight without air cover, when time is so important that reasonable losses from air attack are acceptable. Sufficient dispersion is prescribed to prevent excessive damage to the column by bombing or shelling. Open column may be used to advantage when moving with driving lights at night. Due to the dispersion of the vehicles, the full traffic capacity of the road is not used and control is difficult.

18. CLOSE COLUMN. In close column the density of vehicles varies from 25 to 80 vehicles per mile. The vehicles are separated by the minimum safe driving distance. This distance in yards is approximately twice the speedometer reading. Close column is used when a large column of traffic must be moved over short distances in minimum time. It is useful for night blacked-out moves, particularly over poorly marked routes. Close column during daylight is not justified unless the column has air cover or is otherwise secure from air attack. An advantage is that it uses the maximum traffic capacity of roads. However, it does not provide

dispersion, and traffic bottlenecks are likely to occur at critical points along the route of march.

19. INFILTRATION. In infiltration the density of vehicles is less than 10 per mile. This is accomplished by dispatching vehicles at irregular intervals. It may be used when sufficient time and road space are available. If it is used, the route is carefully marked in advance to prevent the drivers from becoming lost. It provides security and secrecy, but control is difficult and the volume of traffic is less than for either open or close column.

20. MARCH DISCIPLINE. **a.** Thorough supervision maintains control and march discipline. Especially at night the leader sets the example to overcome the difficulties of fatigue and darkness. Officers check the column frequently to maintain march discipline. Platoon leaders do this by using the $\frac{1}{4}$ -ton truck assigned to each platoon. The leading vehicle of the column acts as a control vehicle to maintain the prescribed rate of march.

b. When the column makes an unscheduled halt, each unit commander goes forward immediately to determine the cause of the delay and to assist in getting the column moving again. Frequent unscheduled halts and unnecessary delays cause the column to become sluggish; therefore, all commanders continuously try to keep the column moving forward without delay.

c. During scheduled halts unit commanders check to see that vehicle crews perform their at-the-halt maintenance. If the adjoining terrain permits, the vehicles move off the road to give other traffic unrestricted passage. If vehicles move off the road, they retain their

same relative position to facilitate the resumption of the march. If the terrain or other conditions, such as mined shoulders, prohibit moving off the road, the vehicles halt as far to the side as possible. Whether the vehicles halt on or off the road, they maintain their prescribed distances; vehicles and personnel remain on the right side of the road, keeping the traveled portion clear. While at the halt, the unit commander checks to see that traffic control personnel are posted at the front and rear of his unit. Vehicle personnel are alert to receive and relay signals for the resumption of the march, especially at night.

21. REGIMENTAL FOOT MARCH. a. Tank company marching as a unit.

- (1) In route column, where infantry battalions are not motorized, the tank company usually marches as a separate serial between the motor elements of the regiment and the foot troops. The tank company may march with the motor elements of the regiment, but if it does it is grouped as a company and is not interspersed throughout the motorized column.
- (2) In a tactical column where security does not permit the motor column to move ahead of the foot column, and if it is not desired to attach the tank platoons to infantry battalions, the tank company moves by bounds in front of, with, or behind, the motor elements of the regiment. Some tanks may be interspersed in the motor column to provide antitank protection. The speed of the truck column in this case is reduced to the speed of the tanks.

b. Tank company marching with its platoons attached to infantry battalions.

- (1) The tank platoons of the tank company may be attached to infantry battalions on a tactical march. They march with the battalions to which attached, in a position within the battalion column prescribed by the battalion commander. The enemy situation and the battalion mission dictate the position of the tanks; however, whenever practicable the tank platoon marches as a unit.
- (2) The platoons of the tank company may be used with infantry to perform *security missions* during a tactical march. If an infantry battalion is the advance guard, the attached tank platoon usually marches with the support (See FM 7-20).
- (3) One or more tank platoons may be attached to a flank guard. In this case the flank guard commander is responsible for the employment of the platoon, and for a route reconnaissance to be sure that the tanks are able to move with the infantry. If the flank guard is expected to have difficulty keeping abreast of the main body, the flank guard commander may transport a part or all of the infantry on the tanks.
- (4) One or more tank platoons may be attached to a rear guard.
- (5) Antitank protection of the main body is provided by tanks attached to the advance, flank, or rear guards.

22. REGIMENTAL MOTOR MARCH. a. Tank company marching as a unit.

When the infantry battalions are motorized in route column, the tank company marches as a unit behind or in front of the motorized elements of the regiment. However, the tank company may march separately, hours or days in front of or behind the regiment, rejoining it at the march destination. If the march distance exceeds 100 miles, the tanks should be transported on tank transporters or by rail to avoid excessive track and engine wear.

b. Tank company marching with platoons attached to infantry battalions.

- (1) Platoons of the tank company usually are attached to infantry battalions during tactical marches. A tank platoon attached to an advance guard battalion is located to closely support the leading elements.
- (2) If parallel roads exist along the regimental route, one or more tank platoons may be attached to the flank guard. In this event they move and operate as directed by the flank guard commander. If parallel routes capable of supporting tanks do not exist, tanks are not used in the flank guard, since they will be unable to keep abreast of the main body. In this case, tanks are placed at the head of the main body, and tank units accompanied by infantry are dispatched along intersecting routes to block dangerous approaches until the main body has passed.
- (3) As in foot marches, antitank protection of the main body is provided by tank platoons attached to infantry battalions.

Section III. POSITIONS AND INSTALLATIONS

23. ASSEMBLY AREA. a. The assembly area is an area where the tank company assembles to organize for an attack. The organization includes inspection and repair of vehicles; resupply; feeding of troops; and the issuance of orders for future actions. (See fig. 7.) *Desirable characteristics of an assembly area are—*

- (1) Concealment from enemy observation.
- (2) Favorable routes to attack positions, and a location forward of defiles which might be blocked by hostile fire.
- (3) Sufficient area to permit dispersion. For a tank company the area should be at least 300 yards by 300 yards.
- (4) At least one good entrance and exit.
- (5) Firm ground in any weather.
- (6) Ground level enough to permit maintenance and movement of supply vehicles.
- (7) Natural terrain protection against hostile armored attack.

b. The regimental commander assigns the assembly area according to the tactical situation and his plans for employing the tank company. A specific area is assigned only after a ground reconnaissance. An assignment based solely upon a map study designates only a general area, since specific terrain may be entirely unsuitable for a tank assembly area.

24. OCCUPATION OF ASSEMBLY AREA. a.

The advance party apportions and guides units of the company into the assembly area. The leading tank or infantry unit in the column is assigned the area

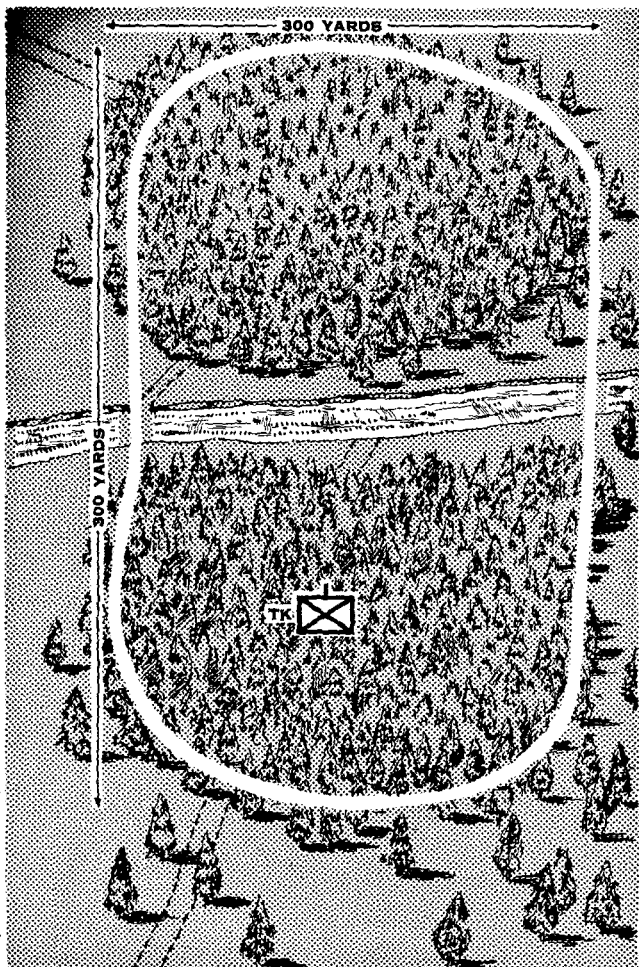


Figure 7. Tank company assembly area showing minimum size, good concealment, entrances from either direction, and exits.

farthest along the route through the assembly area. Special effort is made to assign firm ground to the maintenance section. Three situations may exist which influence the advance party—

- (1) The tank company may march with the regiment. In this event the tank company sends selected personnel with the regimental advance party to aid in selecting a suitable tank assembly area. Tank company advance party personnel guide the tank platoons to their assigned portion of the assembly area.
- (2) The tank company may march alone to an assembly area. In this case one platoon leader and an assistant precede the company, select the exact area, and guide the company into position.
- (3) If the tank platoons are attached to infantry battalions, a man from the tank platoon accompanies the battalion advance party to aid in selecting the assembly area and to guide the platoon into position.

b. Occupation of the assembly area is accomplished with the least possible confusion. When the column arrives at the new area, each unit moves off the road and clears the route of march without halting. (See fig. 8.) The posting of guides, the selection of routes, and the allocation of areas to subordinate units by the advance party are all done with this objective in mind. Vehicles that become stuck or disabled when entering the assembly area are bypassed at once. When an area is occupied at night, as each vehicle leaves the route of march, one member of the crew dismounts and

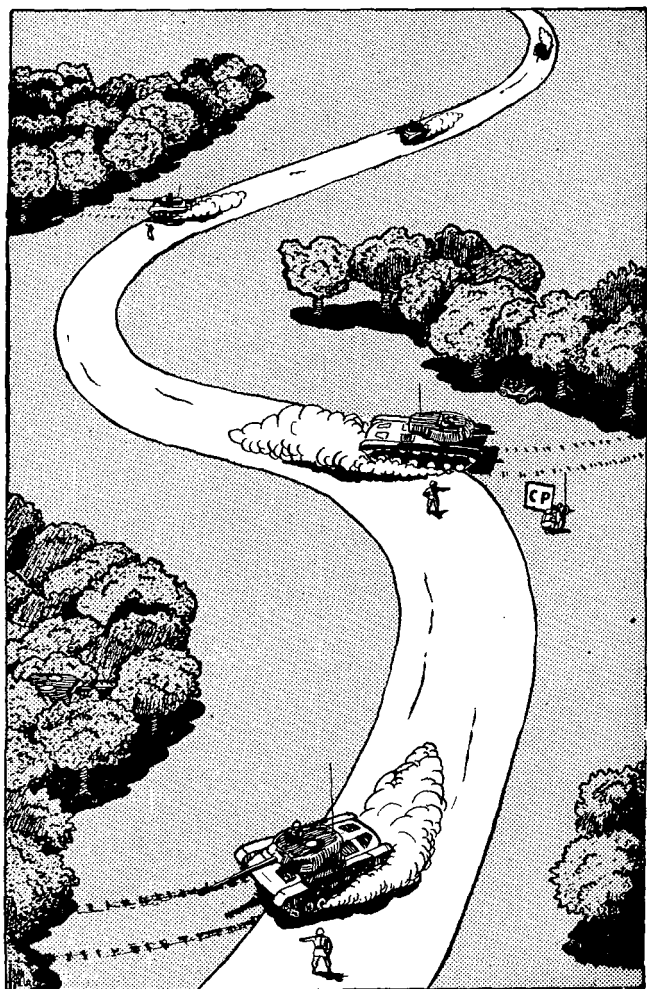


Figure 8. Guides posted at entrances to the assembly area.

precedes it to its assigned position. This guide is equipped with a shielded flashlight, luminous button, or field expedient.

25. ORGANIZATION OF ASSEMBLY AREA. a.

The tank company organizes its assembly area immediately after entering. The company establishes local security, sets up the command post, erects camouflage, services vehicles and radios, and begins crew maintenance duties. The elements of the tank company are located so the company command post, maintenance section, and kitchen truck (if present) are protected and accessible to each platoon (see fig. 9).

b. Movement of vehicles within the area is kept at a minimum. The company is so disposed that it can readily move out in its prescribed order of march. The platoons report their exact location to the company commander. The company commander makes any necessary changes in the reported locations, and coordinates and extends the local security previously established to protect the company. He personally checks the company area as soon as possible after his arrival. The company commander sends his liaison agent to regimental headquarters with the exact location and disposition of the company. If the tank platoons occupy areas in conjunction with the infantry battalions to which they are attached, the platoon leader follows the plan of organization directed by the infantry battalion commander.

26. SECURITY OF ASSEMBLY AREA. a. The tank company protects itself in assembly areas by concealment and by local security measures. When concealment is limited, dispersion is increased. (See fig. 10.)

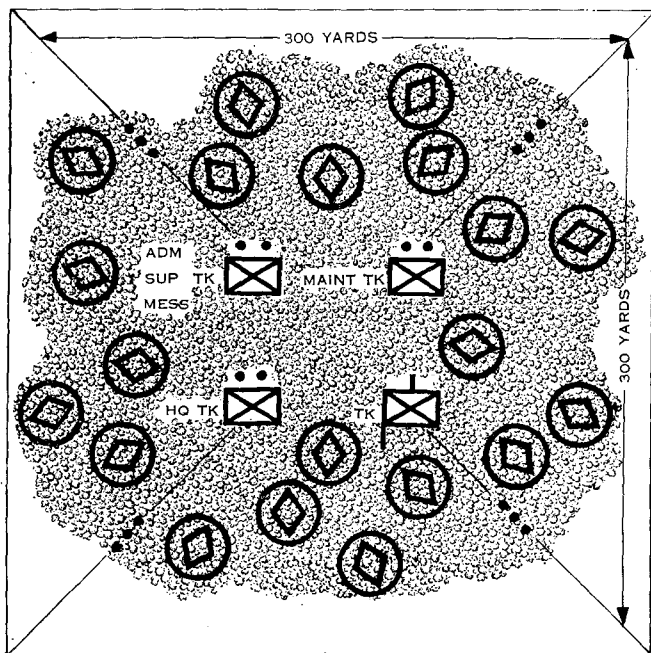


Figure 9. Organization of tank company assembly area (schematic).

The assembly area is protected by an outpost system and by using natural and artificial obstacles. Outposts are placed on commanding ground furnishing good defensive positions and observation. Tank units which are part of a larger force usually depend upon the larger force outpost system; however, this does not relieve the tank units of the responsibility for their own local security. Some tanks may be employed to cover road blocks with direct fire. In this case they are emplaced before darkness unless the position is under direct

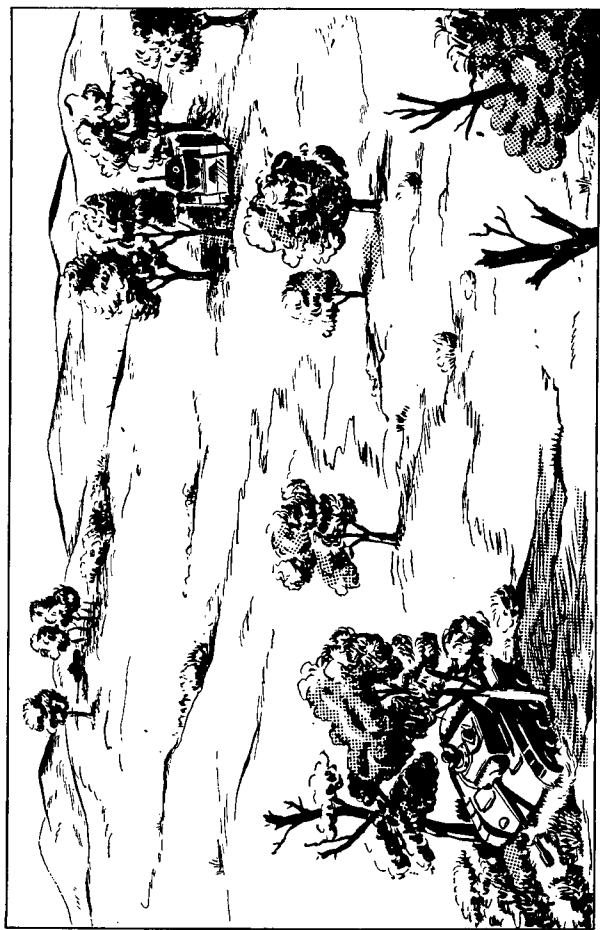


Figure 10. Dispersion is increased when concealment is limited.

enemy observation. Ranges to important terrain features are determined, listening posts are organized, and liaison is established with other outpost troops.

b. Local security personnel enforce camouflage and traffic discipline within the tank company area and prevent hostile or suspicious persons or vehicles from entering, observing, or firing into it. Company personnel maintain a high standard of local security despite friendly advances by the local inhabitants and distance from the actual front. Tanks are placed to cover the perimeter of the assembly area with their primary armament. A tank especially sited for perimeter protection has one crew member on alert in the turret. Tank crews stay near their tanks. When an avenue of approach cannot be conveniently covered by vehicular weapons, dismounted machine guns are emplaced to defend it. Personnel get the maximum rest consistent with adequate security.

27. CAMOUFLAGE IN ASSEMBLY AREA. The camouflage employed by the tank company supplements available natural concealment. It eliminates regular outlines and formations, distinctive shadows, shine, tracks, textures, and color patterns which do not blend into the existing terrain. (See fig. 11.) Too much camouflage is frequently as bad as too little. Continuous camouflage discipline is enforced, for the most careful measures are defeated by carelessness and fatigue. Particular care is taken in checking the camouflage discipline around the maintenance section, kitchen, and latrines.

28. RESUPPLY IN ASSEMBLY AREA. **a.** Resupply is begun as soon as occupation of the assembly area is complete. The company commander posts guides



Figure 11. Eliminating tracks which might reveal the tank's presence.

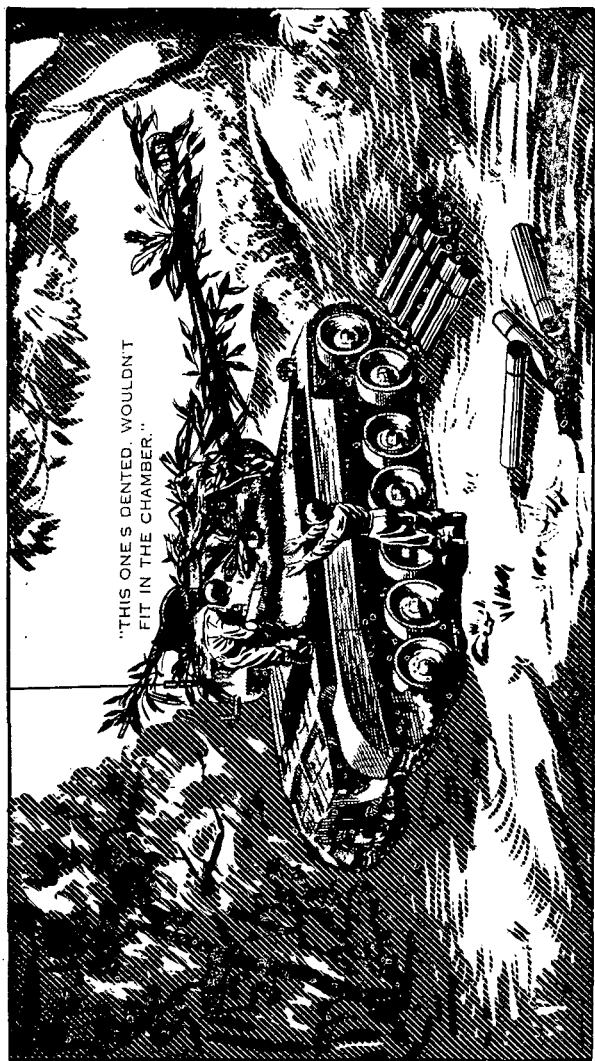


Figure 12. Ammunition resupply.

to meet and direct the supply trucks to each platoon. Depending on the existing terrain and concealment, supply vehicles are brought up to each tank to unload fuel and ammunition, or are halted at a covered central point in each platoon area from which the supplies are carried to the individual tanks by their crews. Every effort is made to conduct the supply trucks to each individual vehicle. Lights and traffic restrictions are rigidly enforced. Supply trucks are quickly unloaded and released. Empty water and gasoline containers are collected and exchanged for full containers. The contents of partially filled containers are consolidated, and all empty gasoline containers are returned to the fuel and lubricant trucks before their departure. Individual rounds of ammunition are inspected for dents, dirt, and corrosion; they are then wiped clean before being carefully stowed in the tanks. Unserviceable rounds can cause the loss of a tank and the lives of its crew. (See fig. 12.)

b. Crew maintenance begins as soon as the vehicles are in position in the assembly area. (See fig. 13.) Maintenance which the crew cannot successfully accomplish is reported to the company maintenance section, which performs maintenance within its capabilities. The maintenance section maintains liaison with the regimental service company tank maintenance section.

29. DEPARTURE FROM ASSEMBLY AREA. a.

Departure from the assembly area is systematic. Upon receipt of warning orders from the regimental commander, the company commander alerts his unit. After receiving the march order, he briefs the company. Each element of the company reports itself ready to march when its preparations are complete. When all have re-



Figure 13. Crew maintenance in assembly area.

ported, the company commander makes a similar report to the regimental commander.

b. When the company marches as part of a larger unit it establishes liaison with the unit preceding it in the column. The liaison agent keeps the company commander informed of the progress of that unit, thus permitting the company to reach and clear the IP at the prescribed rate of march without having to halt. Similar arrangements are made between elements of the company, especially during night movements. When radio silence is ordered, messengers are used for communication.

c. The departure from the area is organized so that each vehicle of the company leaves its position and joins the moving column in the proper place, at the assigned rate of march, and at the prescribed distance. Any vehicles which cannot be moved with their unit are promptly reported to the maintenance section for disposition. Prior to departure the area is policed.

30. ATTACK POSITION The attack position is the last position occupied by assault units before they cross the line of departure. This position should have cover from direct fire and concealment from ground observation. It should provide good avenues of approach to the line of departure and should be large enough to allow the units to adopt their assault formation. In the attack position, necessary changes in orders are issued and final details of coordination and reconnaissance are completed. Minimum time is spent in the attack position.

31. AXIS OF SUPPLY AND EVACUATION.

The axis of supply and evacuation is a designated line, usually a road or series of points within the zone of advance, along which supply and maintenance details move, and over which vehicle and personnel casualties are evacuated.

32. SERVICE PARK. The service park is an installation where the maintenance elements of the tank company work. It moves forward along the axis of supply and evacuation and provides ready maintenance support for tank units. (See ch. 6.)

CHAPTER 3

OFFENSIVE OPERATIONS

Section I. TANK EMPLOYMENT AND FORMATIONS

33. REFERENCES. For information concerning offensive operations in addition to that contained in this manual, see the list of field manuals given in appendix II.

34. EMPLOYMENT OF REGIMENTAL TANKS.

a. When determining the employment of tanks, the commander decides where and in what force they can help best to accomplish his mission, and whether the action should involve infantry supported by tanks or tanks supported by infantry. One or more tank platoons may be employed in either or both battalion zones of action, or the entire tank company may operate as a unit. Tanks are used where they most decisively influence the action. Their employment depends upon the terrain, the enemy situation, supply conditions, the zone of the heaviest attack, and the disposition of divisional tank elements.

b. When additional tank units are attached to the infantry regiment, the tactical integrity of the various tank units is maintained. Elements from the regimental tank company and attached tank units are not intermingled.

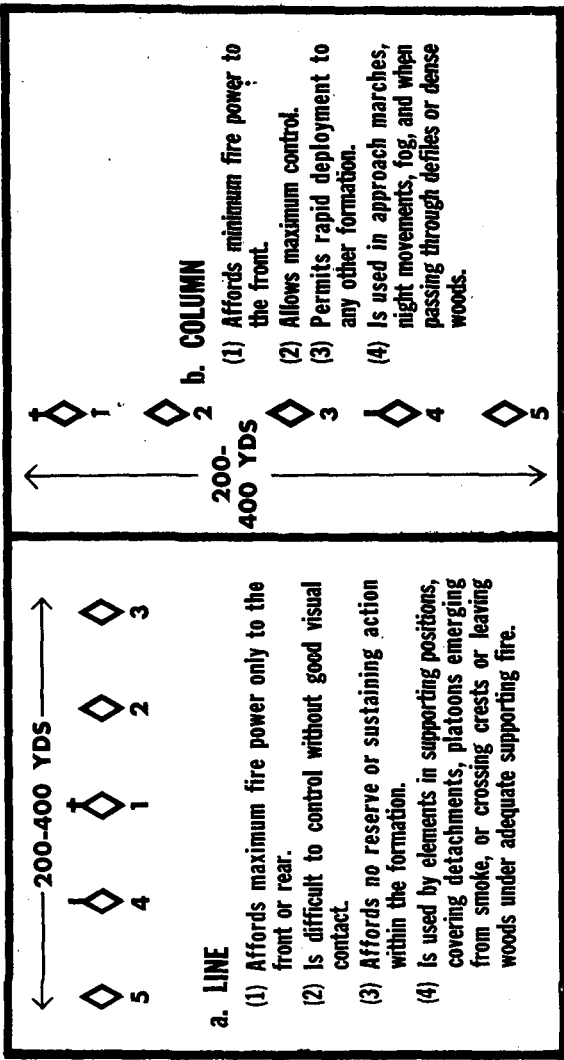
c. The company headquarters of the tank company is retained under regimental control. However, the two M45 tanks of company headquarters are available for

missions specified by the tank company commander. Normally, he uses one as a command tank; however, when the situation renders such use profitable, he may use the fire of their 105-mm guns to increase fire support. Infrequently, he may use them as a section to reinforce a tank platoon. When the tank company operates as a unit, the M45 tank not used by the company commander may be used by the artillery forward observer present with the company.

35. PLATOON COMBAT FORMATIONS. The line, column, line of sections, wedge, and echelon are formations used by tank units (see fig. 14). The unit leader considers control, security, fire power, terrain, and enemy information in deciding what formation to use. Formations are flexible and may be changed when ever necessary. The tank unit leader changes his position in any way necessary to control the formation. Platoon combat formations are used during the movement from the attack position to the line of departure and beyond.

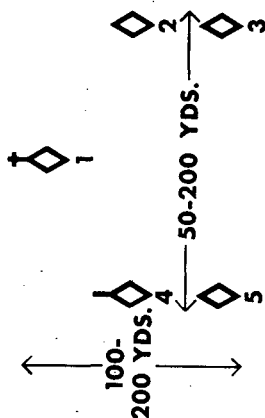
36. DEFILADE. a. A tank is in *turret defilade* when the entire tank is behind cover, but when the tank commander, from his position in the turret, can observe to the front. Turret defilade is used for protection while observing.

b. A tank is in *hull defilade* when the muzzle of the tank gun is the lowest portion of the tank exposed to the front. Hull defilade is used for maximum protection while engaging targets with direct fire. When selecting a hull defilade position, the tank commander selects a slope that permits the gun muzzle to be depressed sufficiently to engage all targets. He positions the tank to avoid excessive pitch. (See fig. 15.)



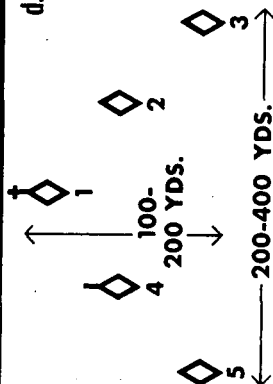
①
Figure 14. Platoon formations.

c. LINE OF SECTIONS



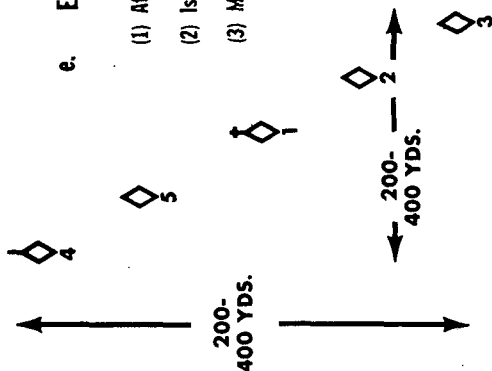
- (1) Affords fire power to the front and flanks.
- (2) Is easier to control than line, wedge or echelon.
- (3) Permits further deployment to the front or flanks and lends itself readily to movement by bounds or fire and maneuver.
- (4) Is used in passing through wide defiles or sparse woods and in last stages of an approach march.

d. WEDGE



- (1) Affords good fire power to the front and each flank.
- (2) Provides good directional control, but the control depends largely upon visual contact between adjacent tanks.
- (3) Lends itself readily to development of movement by bounds or fire and maneuver.
- (4) Is used prior to contact when the platoon leader wants to maintain maximum control though deployed.

③
Figure 14. Platoon formations—Continued.



e. ECHELON RIGHT (LEFT)

- (1) Affords maximum fire power to the right (left) front.
- (2) Is difficult to control without good visual contact.
- (3) May be used on the exposed flank of a larger formation.

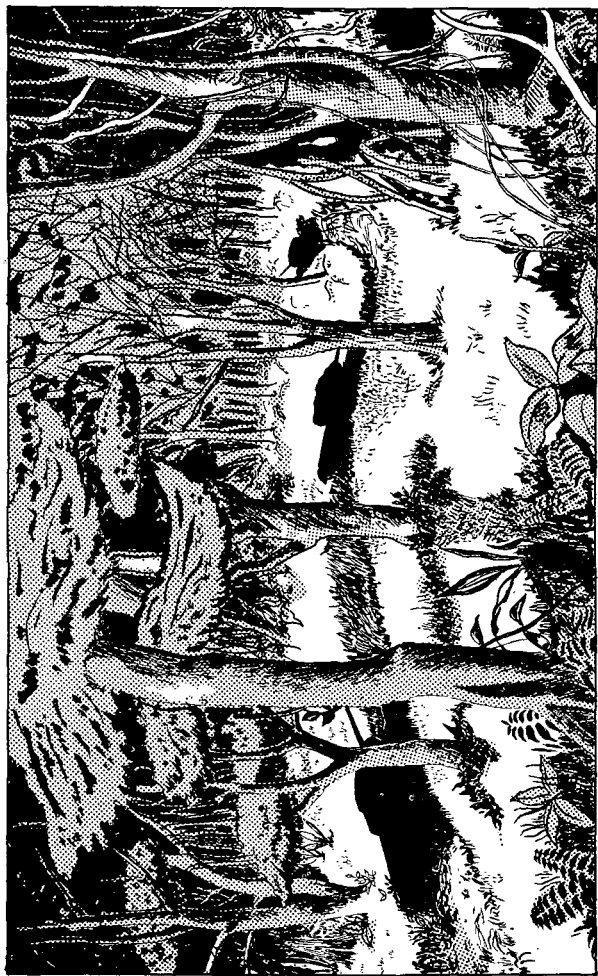
③
Figure 14. Platoon formations—Continued.



④

Figure 14. Platoon formations—Continued.

Note. When crossing a ridge, the moving element crosses in line formation, supported by other tanks in firing positions. This formation gives greater protection against enemy weapons which otherwise might concentrate fire on each tank in succession.



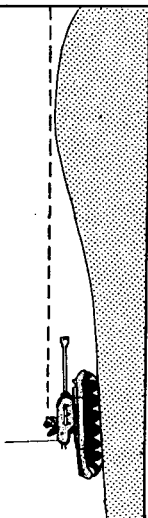
⑤

Figure 14. Platoon formations—Continued.

Note. Control is retained in movement through woods, dense vegetation, very high grass, or jungle, by advancing in column.

A TANK IS IN TURRET DEFILADE WHEN THE ENTIRE TANK IS BEHIND COVER, BUT THE TANK COMMANDER STILL CAN OBSERVE TO THE FRONT FROM THE TURRET. USE TURRET DEFILADE FOR PROTECTION WHILE OBSERVING.

TURRET DEFILADE



A TANK IS IN HULL DEFILADE WHEN THE MUZZLE OF THE TANK GUN IS THE LOWEST PORTION OF THE TANK EXPOSED TO THE FRONT. USE HULL DEFILADE FOR MAXIMUM PROTECTION WHILE ENGAGING TARGETS WITH DIRECT FIRE.

HULL DEFILADE POSITION



IN SELECTING A HULL DEFILADE POSITION, BE SURE THAT THE SLOPE IS NOT SO STEEP THAT THE GUN MUZZLE CANNOT BE DEPRESSED SUFFICIENTLY TO ENGAGE TARGETS. TRY TO POSITION THE TANK SO THAT IT DOES NOT HAVE EXCESSIVE PITCH.

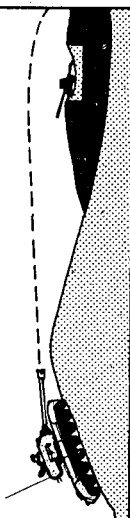


Figure 15. Defilade positions.

37. MOVEMENT BY BOUNDS. A bound is a single movement of a unit from one position to another. When a tank unit is not completely protected by other supporting fires, some of the tanks remain in a firing position to protect the other tanks in their movement to the next position. In making a bound the moving tanks stay within the limit of the protective fire of the stationary tanks so that any enemy antitank weapons attacking the moving tanks may be taken under effective fire. The length of the bounds depends upon available observation and fields of fire. In hilly country, on ground covered by patches of trees, or when visibility is poor, the bounds are very short; on flat, open ground, when visibility is good, the bounds are longer. The advance may be made by successive bounds or by alternate bounds. (See figs. 16 and 17.)

Section II. INFANTRY-TANK TEAM

38. MISSION OF INFANTRY-TANK TEAM.

An infantry-tank team is formed when a tank unit and an infantry unit are combined for tactical operations. The mission of the infantry-tank team is to destroy the enemy. It accomplishes this mission with minimum loss of personnel when there is complete cooperation and coordination within the team and with all available supporting arms.

39. CHARACTERISTICS OF INFANTRY-TANK TEAM.

The combined characteristics of the component parts of an infantry-tank team result in a balanced fighting unit. The characteristics of one element are complementary to the characteristics of the other. Thus, the vulnerability of infantry to small arms fire is offset

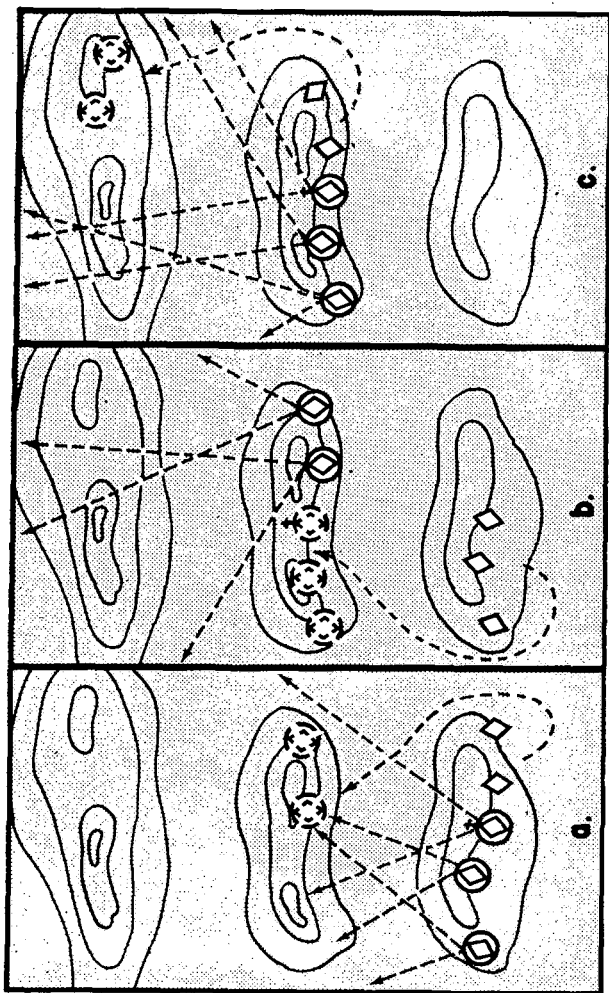


Figure 16. Successive bounds. (The same element leads covered by other element.)

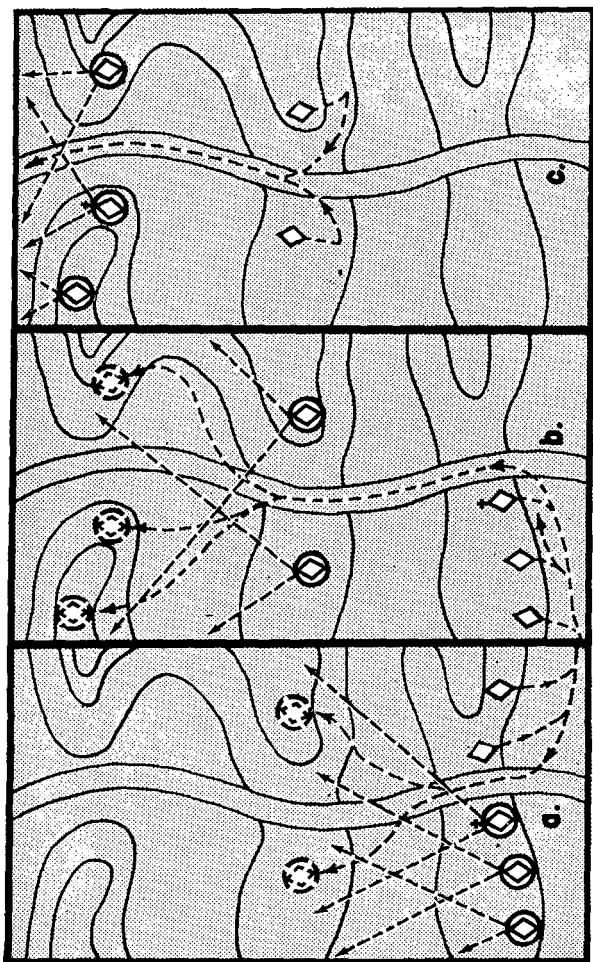


Figure 17. Alternate bounds. (Tank elements leapfrog forward and alternate in overwatching the leading element.)

by the tanks' armor protected fire power. The vulnerability of tanks to enemy individual antitank weapons and obstacles is offset by the capability of the infantry to destroy these weapons and breach the obstacles. Tanks are relatively blind compared with infantry. Tanks can cross antipersonnel mine fields and barbed wire; infantry cannot, unless paths are made through the obstacles. (See fig. 18.) Tanks have a great amount of fire power, which is used to assist the team. The infantry in turn protects the tanks from individual enemy antitank measures. These complementary characteristics, aided by a good communication system, make infantry combined with tanks (and artillery) a powerful, balanced team.

40. COMPOSITION OF INFANTRY-TANK TEAM

Various infantry units are combined with various tank units to form infantry-tank teams. One platoon or one company of infantry combined with one platoon of tanks is normally the smallest effective team.

41. TANK COMPANY COMMANDER'S ESTIMATE.

Before the regimental attack order is issued, the tank company commander makes an estimate of the situation so that he will be prepared to recommend the employment of his company. This estimate is based on his knowledge of the regimental mission, the friendly forces, the enemy, and the terrain in the regimental zone. Usually he already knows part of this information; part is included in the instructions received from the regimental commander, and part he gets by reconnaissance. He develops his estimate while he reconnoiters.



Figure 18. Tanks clearing path through wire and antipersonnel mine field.

42. TANK COMPANY COMMANDER'S RECOMMENDATIONS.

a. Whenever practicable the tank company commander's reconnaissance is made on the ground; however, in some situations it may have to be wholly or partially by map.

b. The result of the company commander's estimate of the situation is presented to the regimental commander as recommendations which include—

- (1) Areas in which tanks can be used to best advantage.
- (2) Number of platoons to be used in each area.
- (3) Routes of approach.
- (4) Infantry-tank formations.
- (5) Tentative plan of maneuver.
- (6) Areas and manner in which to employ reserve tanks in counterattack and antitank roles.
- (7) Plans for the reinforcement or relief of any or all of his leading platoons.
- (8) Manner in which all platoons are to be supplied.

43. COMMAND OF INFANTRY-TANK TEAMS.

a. As a result of these recommendations and the tactical problems presented by the regimental mission, the regimental commander forms infantry-tank teams. The actual composition of the team usually is determined by the battalion commander to which the tanks are attached. At times, infantry is attached to the tank company, and then the tank company commander designates the composition of the teams.

b. The team commander is the commander of the unit, either infantry or tank, to which the other unit is attached. Because of the preponderance of infantry within the infantry regiment and because of the type

missions usually assigned to an infantry unit commander, the team commander in most cases is the infantry unit commander. In situations where the tank company is used as a unit and the mission is particularly suited to armored action, company or smaller sized infantry units are attached to the tank company.

44. MEASURES FOR INFANTRY-TANK COORDINATION.

The success of any operation depends upon coordination and teamwork. *Coordination* begins as soon as the infantry-tank team is formed, and continues throughout all phases of its operation. It is the responsibility of both the tank and infantry commanders to insure that coordination between their respective units is as complete as time permits, and that the details of coordination are understood by all concerned. Coordination between tank and infantry units is promoted by training them together. Coordination of infantry with tank units is discussed and understood by both unit commanders so that each knows what the other is going to do, and how and when he will do it. This coordination includes—

- a. Arrangement for liaison and communication between infantry and tank commanders.
- b. Support by tank weapons.
- c. Support by infantry weapons.
- d. Arrangement for passage of tanks through infantry.
- e. Arrangement for passage of infantry through tanks.
- f. Arrangement to guide tanks through mine fields, across obstacles, over difficult terrain, and to firing position.

g. Tentative plan of action for each unit upon taking the objective.

h. Tentative plan for continuation of the attack.

45. INFANTRY-TANK TEAMWORK. Coordination between infantry and tank unit commanders alone is not sufficient for successful operations. In addition, measures are taken to insure that *teamwork* between all personnel is complete. Individual infantrymen and tank crew members are carefully taught what is expected of each unit and how and when each detail of the operation is to be accomplished. They learn the methods by which targets are to be designated (see fig. 19), the means of communication to be used between tanks and infantry, the methods of mutual support, and the plan of fire and maneuver. Individual squads are trained to operate with tanks. The way tanks support one another by fire and maneuver is taught to each infantry squad, and the manner in which infantry squads support one another is taught to all tank personnel.

46. TROOP LEADING PROCEDURE. Upon receipt of orders for an offensive operation, the infantry-tank team commander determines the essential preparatory steps to be taken. He decides what he will do personally, and what he will delegate to his leaders. His actions follow this sequence—

a. Confers with the unit commander of the other unit, tank or infantry.

b. Formulates tentative plan.

c. Plans the reconnaissance.

d. Selects an observation post and sends for his unit leaders.

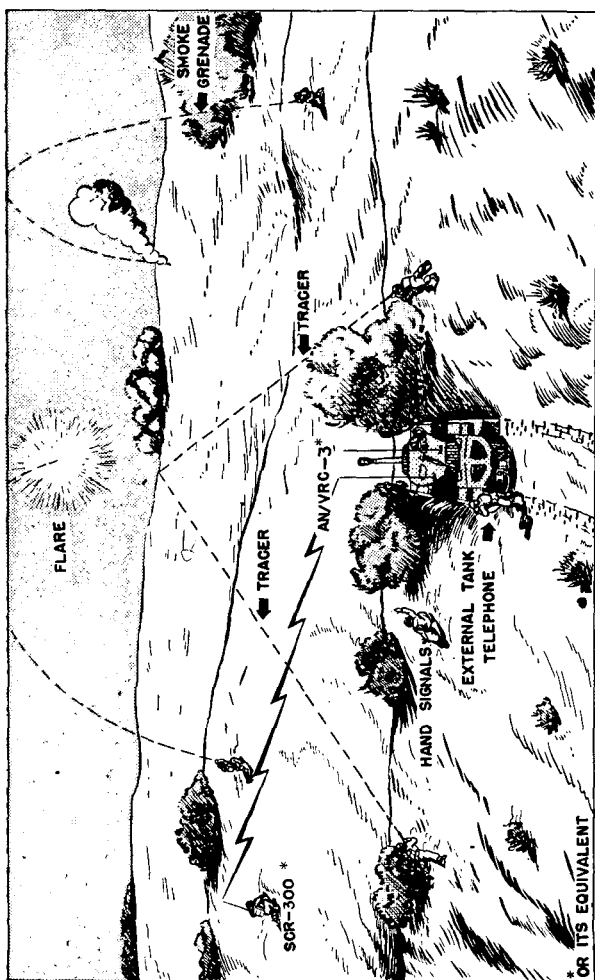


Figure 19. Methods of target designation within infantry-tank team.

- e. Makes a personal reconnaissance.
- f. Decides upon his plan of attack.
- g. Issues the order.
- h. Supervises the execution of the order.

47. CONFERENCE WITH OTHER UNIT COMMANDER. The infantry-tank team commander confers with the commander of the other members of the team. He checks on the status of men, ammunition, and equipment of the other unit and assures himself that the team as a whole is ready for combat.

48. PLANNING AND COORDINATION OF RECONNAISSANCE. The infantry-tank team commander plans and coordinates the reconnaissance. He studies his map and assigns sectors of reconnaissance for himself and designated leaders. If possible, the commanders of the other units accompany him on his personal reconnaissance. (See fig. 20.) If this is not possible, he arranges for them to make a separate reconnaissance and to exchange information with him before he issues the attack order. In addition to a map and ground reconnaissance, to complete and verify information the infantry-tank team commander uses any available means of aerial reconnaissance. Aerial photographs and photomaps are of great assistance, and light planes are requested to perform close reconnaissance missions.

49. SELECTION OF OBSERVATION POST. A desirable location for an observation post is one which affords maximum observation over the infantry-tank team zone of action yet is sufficiently concealed to permit the assembly of the unit leaders to receive the team



Figure 20. Combined reconnaissance.

attack order. The team commander designates this point sufficiently early to allow time for the unit leaders to be guided to it by messengers while the reconnaissance is in progress.

50. RECONNAISSANCE. The infantry-tank team commander in making his reconnaissance is vitally interested in enemy installations and terrain which will affect the employment of either infantry or tank units and the employment of the team as a whole.

51. ESTIMATE OF THE SITUATION. **a.** During his reconnaissance, the infantry-tank team commander makes his estimate of the situation. This is the process of reasoning by which he arrives at a plan of action to accomplish his assigned mission. He considers, in turn, his mission, the opposing enemy force and its capabilities of interfering with the execution of his mission, his own force and its capabilities, the terrain, and the courses of action open to him. The estimate is comparatively brief and simple. It is based upon available intelligence, amplified by his personal reconnaissance and the reconnaissance of his unit leaders.

b. A vital part of the estimate of the situation is a terrain analysis covering—

- (1) *Critical terrain features.* Consider any terrain features which appear to be of importance to either combatant, such as a dominating hill or ridge, the shoulders of a defile, a highway, a built-up area, or a communication center. These are evaluated with respect to their importance to both the enemy and the team. They are features, the seizure of which will seriously affect an operation. Effort is made

by both combatants to hold these critical terrain features. They are directly tied in with observation and fields of fire, obstacles, concealment and cover, and avenues of approach.

- (2) *Observation and fields of fire.* To be able to bring effective fire on the enemy, observation of the terrain over which the team is to advance is essential. The terrain is evaluated both from the enemy's viewpoint and the viewpoint of the team. Fields of fire available to the enemy are carefully considered, as well as the fields of fire available to the team. The team commander considers the fact that enemy weapons in front of adjacent teams may be able to fire on his own team. He looks for supporting weapon position areas giving the maximum effectiveness of fire. Hills, vegetation, fog, snow, precipitation, and visibility influence observation and fields of fire.
- (3) *Obstacles.* Obstructions to the movement of the team may be natural or artificial. If they afford a decided advantage to the enemy, the team commander plans to avoid, destroy, or breach them. Some natural obstacles may be useful to the team. For example, rivers, marshes, and other difficult terrain located on the flank of the team help protect it from hostile flank attack.
- (4) *Concealment and cover.* The team commander determines which terrain affords the best possible concealment and cover for movement to the objective. He rejects terrain which the enemy is likely to cover with fire, or which

contains serious obstacles in favor of less desirable avenues of approach which the enemy cannot, or has not covered. Concealment may be afforded by woods, cultivated fields, fog, darkness, and snow covered areas, and cover may be provided by ditches and valleys.

- (5) *Avenues of approach.* In evaluating the terrain relative to avenues of approach, the team commander is primarily concerned with the effect of the terrain on the accomplishment of his mission. Once that mission is accomplished, he will be concerned with the evacuation of casualties and with resupply. Therefore, before the attack he selects tentative avenues of approach from the line of departure to the objective. These avenues of approach provide maximum concealment and cover. Soil trafficability is an important consideration in selecting avenues of approach, especially when tanks are used.

52. PLAN OF ACTION. After completing his estimate of the situation, the team commander again confers with the commanders of the other units. He makes his plan, which includes measures for teamwork within the infantry-tank team and with supporting units. He plans to use the capabilities of each unit to the maximum. His plan is flexible enough to allow for unexpected occurrences. Units are prepared to react promptly to changes in the tactical situation.

53. ATTACK ORDER. After completing his reconnaissance and plan of attack, the infantry-tank team commander issues his attack order to his assembled unit

leaders. He issues the order in time for them to make their own additional reconnaissances, issue their orders, and dispose their units for the attack. The order is complete, concise, and simple. It includes:

Information of the enemy and our own troops, including supporting fire plan.

b. The infantry-tank team mission—

- (1) Mission of the tanks.
- (2) Mission of the infantry.

c. The scheme of maneuver to include—

- (1) Time of attack.
- (2) Line of departure.
- (3) Direction of attack.
- (4) Zone of action.
- (5) Initial formation.
- (6) Objective.

d. The plan of reorganization on the objective.

e. The location of the aid station and other necessary administrative details.

f. Instructions concerning signal communication; the team commander's location during the attack; and the location of his command post.

54. SUPERVISION OF ATTACK PREPARATIONS. To insure that the details of his order are being executed, the infantry-tank team commander actively supervises the preparations for the attack.

55. LIAISON BETWEEN TANK COMPANY AND REGIMENTAL COMMANDER. **a.** The tank company commander arranges the liaison between himself and the regimental commander. In the initial stages of an operation, this is customarily command liaison, in

which the company commander contacts the regimental commander. During the operation, he reports personally to the regimental commander at frequent intervals.

b. When the company commander leaves the regimental commander, the tank company liaison agent stays at regimental headquarters. He may be equipped with a $\frac{1}{4}$ -ton truck (with radio.). There is also a radio at regimental headquarters which will net with the tank company radios. Physical proximity of the headquarters of the tank company to the regimental headquarters facilitates liaison. Communication between the liaison agent and the tank company commander is by radio, telephone, or messenger. Whenever practicable, more than one means of communication are provided.

56. METHODS OF ATTACK. There are several ways in which infantry and tanks coordinate their power in the attack. The method which best assures success in any specific attack is determined by the type of mission, the nature of the terrain, the information of the enemy, and the composition of the infantry-tank team.

a. Tanks initially attack by fire, then move forward rapidly and join infantry for assault.

In this method the tanks fire from hull defilade positions while the infantry moves across the line of departure to a position from which to begin the assault. When the infantry approaches this assault position or when the infantry masks the tank fires, the tanks move rapidly forward to join the infantry in the final assault. During this phase, the tanks and infantry may move to-

gether; or the tanks may move slightly ahead of the infantry. This method can be used when the objective is clearly defined and when the terrain is sufficiently open to permit tanks to fire overhead or to the flanks of the advancing infantrymen. Time is needed for careful coordination and preparation of a detailed supporting fire plan. This method provides effective tank fires to cover the movement of the infantry from the line of departure to the assault position, and it assures maximum tank fire power at the critical time of the assault. Since tanks are not restricted to the slow rate of the infantry during their movement forward from the initial firing positions, they are exposed to enemy fire for a shorter period of time. Furthermore, this method assists the infantry in avoiding enemy fire directed at friendly tanks.

b. Infantry and tanks advance together.

- (1) In this method the infantry and tanks move forward near each other at generally the same speed. During the advance the tanks move forward rapidly for short distances, stop to fire, then move forward again. This may result in tanks moving faster than infantry for short distances. This method is used when visibility, fields of fire, and tank movements are restricted. These conditions exist in fog, towns, woods, and at night. Using this method, the tanks provide immediate close-in direct fires, and the infantry protects the tanks from individual antitank measures. (See figs. 21 and 22.)



Figure 21. Tanks and infantry advancing together.

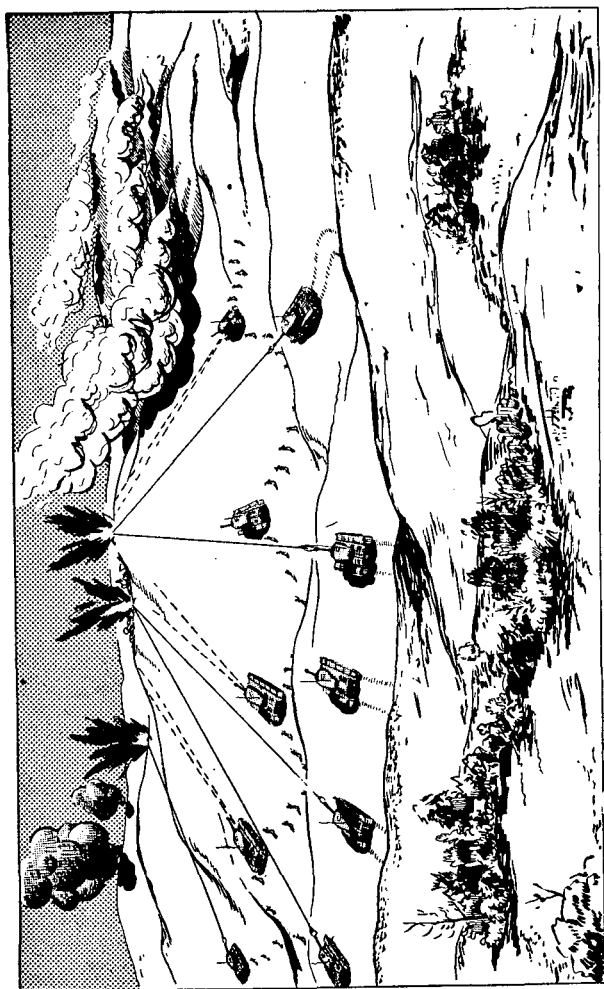


Figure 22. Tanks preceding infantry.

- (2) In a variation of this method, the infantry rides on the tanks until enemy fire forces them to dismount and fight on foot. This provides speed but results in increased exposure of infantry to enemy fire, particularly to air bursts. It also interferes with the operation of the tank. It is used primarily in exploitation. (See par. 61.)

c. Tanks overwatching infantry. In this method tanks attack by fire from hull defilade positions until the infantry reaches the objective, or until the tank fires are masked by the infantry. The tanks thus provide fire effect, but shock action is reduced. This method is used when antitank obstacles, either natural or artificial, prohibit forward tank movement to the objective. (See fig. 23.)

d. Tanks and infantry approach the objective from different directions.

- (1) In this method tanks and infantry use different routes to converge upon objective. Usually the infantry elements move out before the tanks in order that both infantry and tanks close upon the objective nearly simultaneously. This convergence of power provides opportunity for surprise, increases fire effect and shock action, and often permits tanks to utilize speed.
- (2) When conditions permits its employment, it is a most effective method. Essential favorable conditions are: open, or partially open, terrain free from mines and other tank obstacles, and nearly complete neutralization of enemy antitank weapons by supporting fires

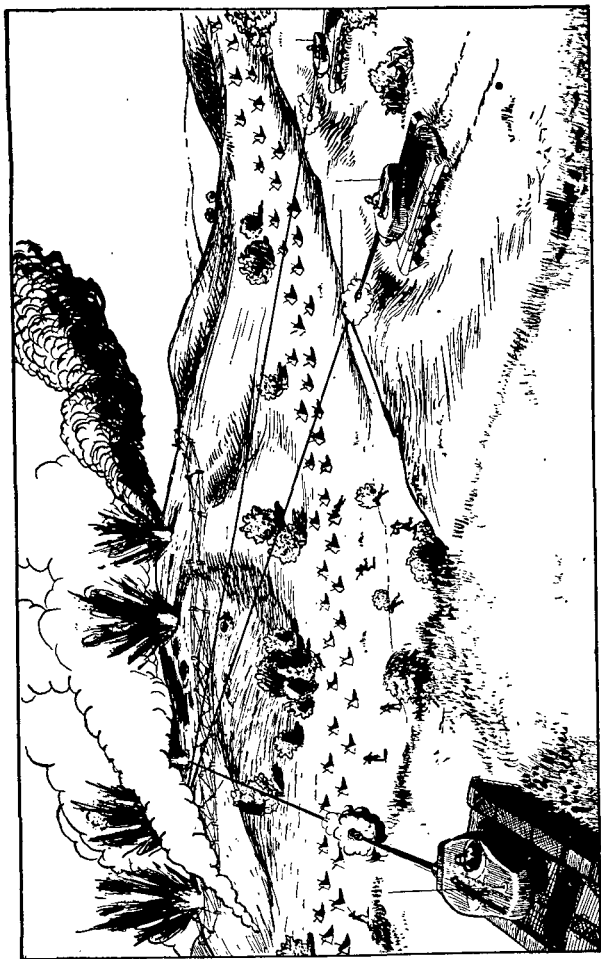


Figure 23. Infantry preceding tanks.

and smoke. However, neutralization is needed only during the relatively brief period required for the tanks to move from their line of departure to the near edge of the objective.

- (3) A sufficient number of tanks to provide ample mutually supporting fire power must be employed.
- (4) All infantrymen and tank crews are completely briefed in order to prevent them from firing into each other when they close on the objective.
- (5) When conditions do not permit speed, infantry accompanies the tanks to furnish close-in protection.

57. PLAN OF SUPPORTING FIRES. a. The amount and types of supporting fires allotted to an infantry-tank-artillery team depend upon the size of the team, its mission, the type of enemy resistance, and the importance of the team's attack with respect to other attacks being made at the same time. The team commander insures that his plan of supporting fires uses the maximum capabilities of all supporting weapons allotted to his team, and that the fires are properly distributed upon the objective. (See fig. 24.) Details of the plan of supporting fires are agreed upon with the commanders of the units providing the fire. Artillery fires may be arranged by liaison officers or forward observers of the direct support artillery battalion. Adjustment, shifting, or lifting of these fires is accomplished by any of these officers upon request.

b. The final plan is flexible because unforeseen incidents are to be expected. The final plan includes

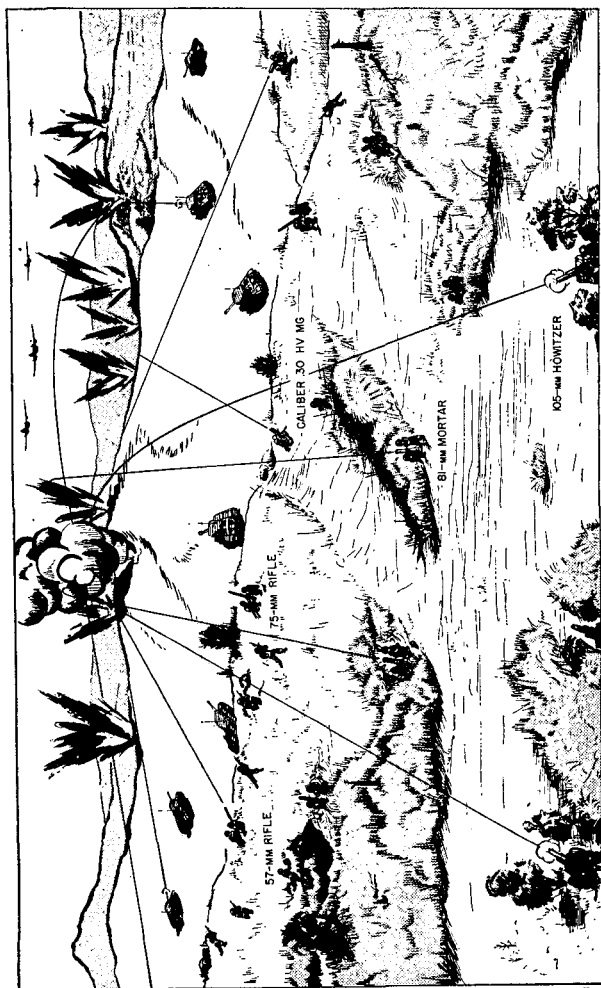


Figure 24. All supporting weapons are used.

initial fires and fires before, during, and after capture of the objective. Reliable communication between the team commander and supporting units is maintained throughout the operation. The timing of the supporting fires and those of the attacking team are planned so that they complement each other. Troops are given complete information of all supporting fires so they can take full advantage of this support in accomplishing their mission.

58. CONDUCT OF ATTACK. Avenues of approach for tanks are selected to provide cover and concealment from direct fire, firm ground, and terrain which facilitates maneuver. The weight, silhouette, and distinctive noise of the tanks make the selection of proper avenues of approach an important consideration. Dense woods, unfordable streams, marshland, defiles, and hills with steep slopes are undesirable features. To prevent silhouetting the tanks, avenues of approach are selected which do not go over the crests of hills.

a. Fire and maneuver. The infantry-tank team gains fire superiority over the enemy in its sector by combining intense fire, including the fires of artillery, mortars, and other supporting weapons, with intelligent, aggressive maneuver. Any combination of fire and maneuver is used. The tanks destroy automatic weapons and armor, and breach antipersonnel obstacles. The infantry protects the tanks from enemy personnel and individual antitank weapons, and breaches antitank obstacles. The infantry-tank team commander exploits diminishing enemy resistance in any portion of his zone of action. As unforeseen situations occur on the battlefield, the team commander promptly changes his dispositions accordingly.

b. Assault.

- (1) The final assault on the objective begins when the combination of the team fires and the supporting fires has established superiority, and the members of the team have maneuvered themselves into an advantageous position (100–200 yards from the objective). The assault may be made by the infantry and tanks together, the infantry alone, or the tanks alone. (See par. 56.) The full fire power and shock action of the team are best exploited by a combined assault of both rifle and tank elements. Because normal supporting fires must be lifted for the assault, the presence of the tanks with rifle elements of the team give the team a heavy volume of direct fire otherwise not available. Elements in the assault increase their rate of movement and volume of fire. When tanks are present, they saturate the objective with machine gun fire. The tank cannon fires against suitable targets.
- (2) Mutual support between the tanks and the infantry remains vitally important during the assault; tanks destroy enemy groups, defensive works, weapons and equipment; infantry protects the tanks from individual antitank weapons and destroys the enemy in close combat. When rifle elements assault the objective without the tank members of the team, tanks occupy hull defilade firing positions that enable them to continue close supporting fires as long as possible without unduly endangering the assaulting riflemen. When overhead fires

are masked by the rifle elements, the tanks often give valuable support by firing to the flanks of the rifle elements. In those instances where obstacles prohibit the tanks from joining in the assault with the infantry, the team commander expedites the removal or breaching of the obstacles, so that the tanks can rejoin the infantry as soon as possible. In those rare instances where tanks assault alone, the team commander insures the use of all available supporting fires from infantry and support weapons to cover the tank assault. The team is reconstituted at the earliest possible moment by joining the rifle and tank elements.

59. REORGANIZATION. a. Preparations to defend against counterattack.

- (1) After the assault has been completed and the objective captured, the infantry-tank team commander quickly disposes his team to repel a counterattack. To provide all-around security for the position, the infantry unit occupies the predetermined sectors of the objective announced in the attack order. To do this, the team commander may use the clock system of reorganization (see FM 7-10). The tanks occupy positions covering enemy avenues of approach, and they furnish heavy weapons support and antitank protection for the team. (See fig. 25.)
- (2) When positions have been occupied, the infantry-tank team commander and his unit



Figure 25. Disposal of tanks during reorganization to cover enemy avenues of approach and to furnish heavy weapons support and antitank protection.

commanders make a reconnaissance and inspection and adjust the position as necessary. Artillery defensive fires are prepared on likely avenues of approach by representatives of the direct support artillery battalion in coordination with the infantry-tank team commander. Critical close-in fires may be adjusted by forward observers.

b. Preparations to continue attack. While the infantry-tank team is preparing to repel counterattacks and making necessary adjustments, the infantry-tank team commander prepares to continue the attack. Key personnel within the team are replaced, and a report is sent to the team commander's immediate superior stating the effective strength of the team, the condition of weapons including tanks, and the status of ammunition supply. New reconnaissance is made concurrent with reorganization. Troop leading procedures for continuing the attack are generally the same as those for starting it.

60. SUPPLY, MAINTENANCE, AND EVACUATION.

a. Supply. It is the team commander's responsibility to provide an opportunity for the resupply of both infantry and tank units. The tank unit commander informs the team commander of the amount of ammunition and fuel in his tanks. If possible, complete resupply of both the tanks and infantry is postponed until the final objective is captured. Every effort is made to supply tanks in position or in the immediate vicinity of them. When supply vehicles are unable to reach the tanks, they are supplied by $\frac{1}{4}$ -ton truck and in emergencies by hand. When necessary, tanks are moved to defilade in the immediate vicinity

of the position for resupply. In this case the resupply is staggered by sections so the infantry on the objective has continuous tank support.

b. Maintenance. Although it is the function of the tank unit itself to perform maintenance on its tanks, it is the team commander's responsibility to give the tank crews sufficient time to perform required maintenance. This is particularly true when the tanks have been in action for several days without an opportunity for such maintenance. (See par. 106.)

c. Evacuation of wounded. Evacuation of the wounded from both infantry and tank units is the responsibility of the infantry-tank team commander. It is carried out through the regimental evacuation system. Tanks are not used to evacuate the wounded unless the tanks are compelled to move to the rear for other reasons.

61. EXPLOITATION. **a.** Exploitation is the follow-up of success in battle, taking full advantage of the enemy's disorganization to drive deep into his rear and complete his destruction and defeat. The tank company operating as a task force may exploit a local success following the defeat of an enemy force or the capture of an enemy position. This is a limited objective operation, directed at destroying all enemy personnel and installations in the vicinity. In the exploitation of a success, the regimental commander may use his tank company to attack and capture a new objective, or he may use it to pursue and destroy the enemy. In either case, the purpose is to annihilate the enemy. To accomplish this, men and vehicles are pushed to their utmost endurance, and pressure is exerted upon the enemy day and night from every side, giving him no

chance to rally, to reconstitute his lines, or to rest his personnel. Tanks and infantry, together with engineers, supporting weapons, and trains, are grouped in efficient combinations; a common combination is the tank company reinforced by an attached rifle company. Sufficient time is allowed for the units making up the force to organize and plan.

b. The infantry is transported in trucks, or on tanks. On-tank transportation may be the most desirable method since it reduces road space, decreases supply problems, and preserves the team unity. (See fig. 26.) The infantry company commander and platoon leaders ride with the corresponding tank unit commanders. Each platoon of the rifle company is loaded on a tank platoon. The command group of the infantry company headquarters is loaded on the tank company headquarters section tanks. The infantry company commander rides with the tank company commander. (See par. 56.)

c. To annihilate the enemy, continuous pressure is relentlessly exerted on him. The team may be ordered to seize strategic objectives deep in enemy territory, such as bridges, key terrain, or vital road junctions. If it spearheads the advance of the regiment, it is given a general route to follow with utmost speed.

d. Opposition during an exploitation usually consists of pockets of resistance, demolitions, mine fields, guerrilla activity, and attacks by mobile enemy forces. Pockets of resistance may be delaying forces at defiles or other favorable defensive terrain features. These forces may be hastily improvised from service troops in the vicinity, or may consist of small detachments of picked personnel specifically trained for such a mission. Unless otherwise ordered, these strongpoints are



Figure 26. Rifle squad transported on tank.

bypassed and left for other troops to mop up. When they cannot be bypassed, they are assaulted.

e. The attack is made from march column employing all available fire power to overwhelm the hostile force as rapidly as possible. As soon as the resistance is reduced, the infantry immediately remounts the tanks and the force continues. Prisoners are left under guard to be picked up by following troops. Approaches coming in from the flanks are blocked until the column passes.

62. ATTACK OF TOWNS. a. Employment of infantry-tank team. Town fighting is characterized by an increase in the importance of close teamwork between infantry and tanks. This is necessary since the physical aspects of towns favor defensive fighting. When possible, approaches other than the main roads or streets are used. In some situations, converging attacks may be desirable. In this case, the tanks and some infantry strike from one direction while the bulk of the infantry strikes from another.

b. Missions of infantry-tank teams. In attacks on towns, infantry-tank teams may be used on any or all of the following missions:

- (1) *Encirclement.* Towns organized as an area of resistance and not as a portion of an enemy defensive line are encircled by an infantry-tank team. This cuts off the enemy's escape routes and prevents reinforcement and resupply of the enemy garrison. Encirclement is always desirable provided sufficient strength and suitable terrain are available.
- (2) *Penetration of outer defenses.* An infantry-tank team is employed to penetrate the outer defenses of a town. Often the best way to

attack a town is to attack perpendicular to its long axis. The tanks fire on buildings which contain located or suspected enemy installations, while the infantry assaults the buildings. The tanks also place fire on the flanks of the assaulting infantry to prevent enemy counterattacks and to neutralize flanking fire. The tanks, normally from their initial covered positions, support the infantry until the first buildings have been cleared, and then they move forward to continue close support within the town. The support element of the infantry unit provides close-in antitank protection for the tanks.

- (3) *Attack within built-up areas.* Infantry-tank teams are employed within a town to reduce all points that the enemy has organized. To promote teamwork and control, the town is divided into zones or areas. Successive limited objectives are assigned. Responsibility is established for each area. Infantry and tank unit commanders plan the attack on each objective. They insure that their communications are functioning. Because of the danger of ambush, tanks do not move ahead of the infantry, but support the infantry by fire from positions already cleared. Infantry is detailed to remain with the tanks to protect them from hostile individual antitank measures.

(a) *The infantry element of the team—*

1. Operates OP's to locate targets and to direct fire.

2. Assists in neutralization or destruction of enemy antitank guns.
3. Under covering fire from the tanks, assaults and reduces positions.
4. Protects the tanks against individual antitank measures.
5. Provides smoke to cover tank movement across exposed areas.
6. Guides tanks to firing positions, around obstacles, and through mine fields.

(b) *The tank element of the team—*

1. Fires into fortified buildings with HE or WP. The tanks fire into the upper stories first to drive the enemy to the basement, where the infantry traps and destroys them.
2. Neutralizes and destroys enemy weapons and personnel.
3. Provides antitank protection.
4. With cannon fire, makes openings in walls and reduces barricades. (See fig. 27.)

c. Control. The physical characteristics of a town tend to separate the units of the infantry-tank team. The battle often becomes a series of small unit actions. To maintain control over the action of the whole team, the infantry-tank team commander decentralizes control to the unit commanders. The attack of these units is coordinated by the assignment of successive limited objectives. Upon the capture of an objective, the units of the team report the capture to the infantry-tank team commander, and he issues orders for a coordinated attack on the next objective.

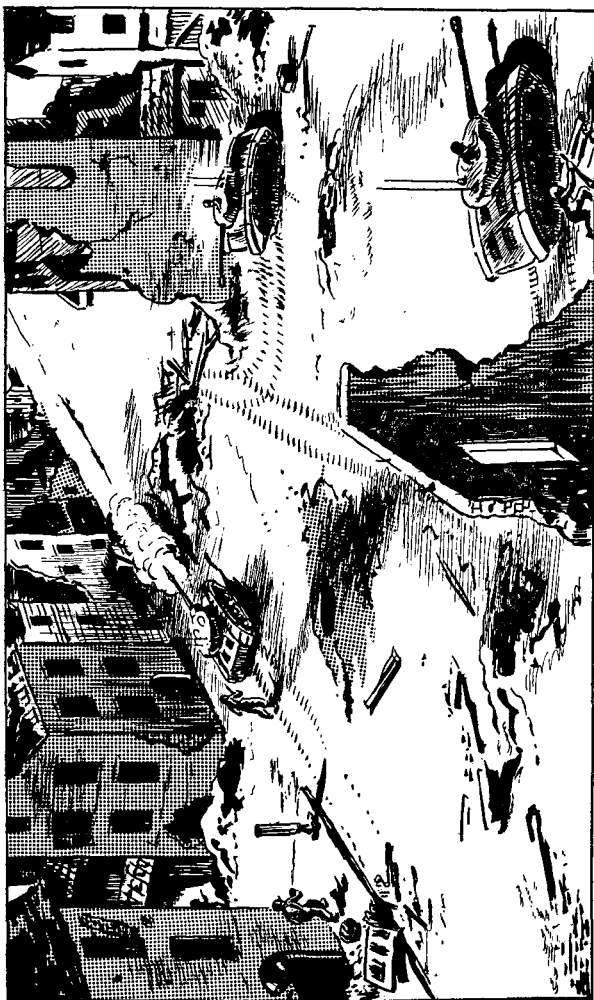


Figure 27. Tank employment in towns.

d. Supporting weapons. Close artillery and mortar support of assaulting infantry is difficult because of poor observation and the proximity of friendly troops. However, prearranged fires on street intersections and large buildings may be requested on call. Direct fire support by the tanks is effective. 57-mm and 75-mm rifles fire on known enemy targets. Machine guns fire down streets and alleyways, and across open spaces, to restrict hostile movement and to destroy enemy driven into these areas by the assault of the infantry-tank team.

e. Special equipment. Tank-dozers and flame-throwing tanks may be attached to infantry-tank teams. The tank-dozers are used to clear rubble from streets and to reduce barricades. (See fig. 28.) By incendiary action the flame-throwing tanks neutralize enemy installations and personnel. (See fig. 29.)

63. ATTACK OF A RIVER LINE. Unfordable rivers, because of the restrictions they impose upon maneuver, constitute obstacles to an attacker and natural lines of resistance for the defender. Unfordable rivers are tank barriers that are overcome only through special tactical and technical operations. Prior to a river crossing operation, the tank company usually occupies a separate assembly area.

a. Reconnaissance. While in the assembly area, the tank company prepares for its supporting role in the crossing and for crossing all of its own elements. The tank company commander frequently designates tank company personnel who accompany infantry patrols operating on each side of the river to complete or verify certain information. Detailed reconnaissance is made to locate—



Figure 28. Use of tank-doggers.



Figure 29. Use of flame-throwing tanks,

- (1) Point targets on the enemy side.
- (2) Area targets on the enemy side.
- (3) Firing positions on the near shore.
- (4) Covered routes into the firing positions.
- (5) Routes from firing positions to selected crossing sites.
- (6) Areas of employment on enemy side.

b. Conduct of the crossing. During the initial stages of a river crossing, tanks give direct fire support and antitank protection by covering probable approaches for enemy armor on the far side of the river. (See fig. 30.) The infantry speedily clears the far side of the river to eliminate direct fire on the crossing site, so the engineers can begin early bridging and ferrying operations. Some tanks may be ferried across the river in the early stages of the operation to assist the infantry in securing a bridgehead. Once crossing facilities are available, the tanks move from their direct fire positions, over the previously reconnoitered routes to an assembly area near the crossing site. A high priority is given the tanks on the use of the bridge or rafts so they can speedily join the foot troops on the far side to continue the attack. During a night crossing tanks can be used for fire support if firing positions have been occupied and targets registered upon during daylight. Tank platoons seldom physically accompany infantry battalions during the actual crossing. Once the river is crossed, tanks operate as for any other attack.

64. ATTACK OF A FORTIFIED POSITION. a.

Planning and preparation. The successful attack of a well organized and aggressively held fortified position is a major operation requiring careful coordination

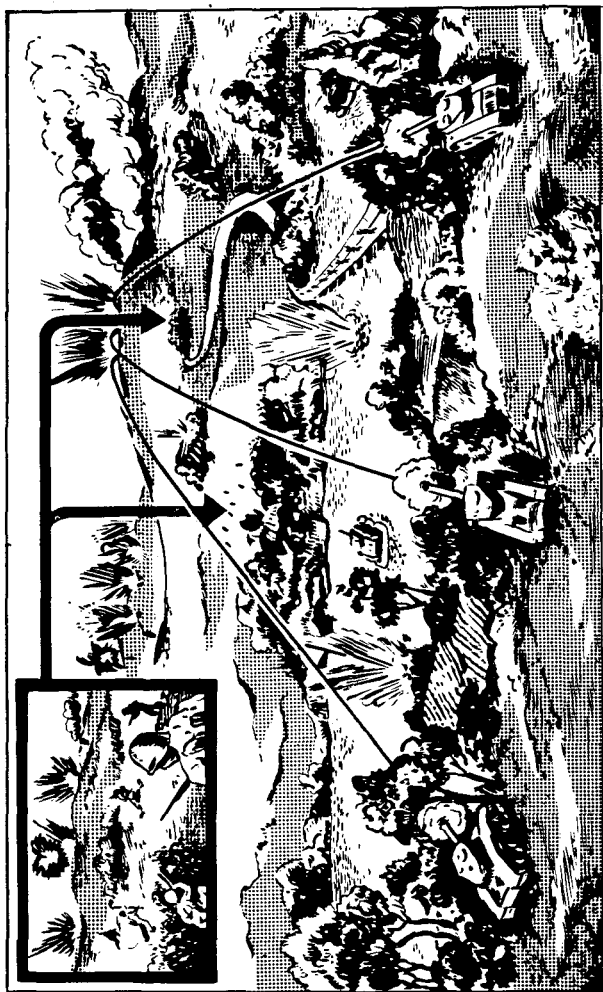


Figure 30. Employment of tanks in river crossing.

of all arms. Ordinarily, a relatively long time is taken for preparations, and the participating troops are rehearsed on terrain with mock-ups duplicating the enemy defensive system. Information for the preparation of mock-ups is obtained from careful and detailed reconnaissance, patrols, aerial photographs, and intelligence agencies.

b. Orders. The attack of a fortified position requires that detailed orders be prepared to include the action of individuals. The attack on each bunker and defensive work is individually planned and coordinated with the attack on adjacent bunkers. The order includes instructions as to positions, targets, time to open fire, and type of fire to be used by tank units.

c. Reconnaissance.

- (1) All echelons reconnoiter intensively from the time the fortified position is discovered until the attack ends. The tank company commander may accompany the regimental commander on reconnaissance, and he is prepared to recommend the detailed use of the tank company. To accomplish this he must know the general plan of the regiment, the weapons which will support the regiment in the attack, and the plan for their use. As the planning becomes more detailed and fire plans for supporting weapons are evaluated, he makes additional reconnaissance.
- (2) As soon as the general plan for the employment of the tank company becomes fixed, platoon leaders are briefed so that they can begin their reconnaissance and planning. Tank

commanders reconnoiter for targets, firing positions, and routes into these positions.

- (3) Tank fires may be used to remove camouflage from defensive works. If they are, the tanks do not fire from the same positions they expect to use in the attack. The tank commanders and the infantry assault team leaders make a combined reconnaissance to determine the exact embrasures in each bunker for which the tank is responsible.

d. Organization of attack.

- (1) The attack of a fortified area is made on a narrow front to achieve a deep penetration. The initial assaulting units are given the mission of breaching the enemy works and widening the breach. Fresh units move through the breach to attack defenses deeper in the zone. If a regiment making the initial assault has tank units attached the organic tank company is attached to the assaulting battalions.
- (2) Because the enemy in a permanent defensive system has detailed counterattack plans for every penetration, a well coordinated counterattack may be expected promptly against even minor successes. Therefore, the commander maintains a reserve and is prepared to employ it quickly in any direction. The attached tank units are used for this purpose. If the assaulting regiment does not have attached tanks, part of the organic tank company is held in reserve to be used against the expected counterattacks.

e. Employment of tank company. In the initial assault, the bulk of the tank company is employed well forward to place direct fire on the embrasures of the bunkers being attacked by the infantry assault teams, or on those embrasures which can fire on the assault teams. (See fig. 31.) Normally, these initial bunkers must be taken before the antitank obstacles can be breached. After the antitank obstacles are breached, the tanks move through the gap and continue to give close support to the infantry assaulting bunkers deeper in the defensive zone. Tank units are prepared at all times to meet a hostile armored counterattack.

65. NIGHT OPERATIONS. a. Characteristics.

- (1) The decision whether or not to employ tanks with the assault echelon in a night attack is made with due consideration of the effect of their noise and blindness on surprise. Employment in the assault echelon is most frequent in attacks executed under natural or artificial illumination. When tanks do not accompany the assault rifle units, tank fires are used initially in the planned fire support, and the tanks join the riflemen on the captured position after it has been secured—or just prior to daylight. The effectiveness of aimed fire is decreased, and there is an increase in the importance of close combat. Difficulties in movement, troop leading, and maintenance of direction are greatly increased, thereby placing greater responsibility on the small unit commander. Well executed night attacks may have surprise in their favor, with a resulting demoralization of the enemy.



Figure 31. Attack of a fortified position.

- (2) The infantry-tank team can make night attacks against a strong point when sufficient time is available for daylight reconnaissance and detailed coordination. Such attacks are for well-defined, limited objectives. Night attacks offer tanks one important advantage by giving them the protection of darkness against long range antitank weapons. Frequently, objectives are taken in night attacks with relatively light losses, where a day attack would result in excessive casualties. At the same time, however, night attack renders tanks more vulnerable to enemy close-in anti-tank measures. Accompanying infantry is especially alert at night to anticipate short range antitank measures and to protect the tanks from them.

b. Plans. Detailed plans for a night attack are made early enough to allow thorough reconnaissance by all units. The plans are kept simple. Definite objectives and boundaries are assigned to each unit. Control measures are perfected. Control is simplified by assigning only one direction of attack, and by prior coordination of communication between the assault units. Direction is maintained by compass, by flares or illuminating shells fired behind the objective, by tracers, or by a combination of these methods. If time permits, the attack is rehearsed on similar terrain, so the tank commanders and squad leaders know what each is to do during the actual attack. Close coordination with supporting weapons, especially with artillery, is done before the attack. Weapons are laid on definite targets or areas during daylight.

c. Conduct of attack. In any night attack one of the most important factors is to have the tank elements of the infantry-tank team in position by daylight to assist in repelling counterattacks. When conditions prevent the tanks from moving with the assaulting infantry, unit leaders accompany the leading infantry elements on foot to reconnoiter routes, make plans for movement around obstacles or through mine fields, and select tank firing positions. The tank unit leader then returns and leads the tanks to the selected positions.

d. Reorganization. After capturing the objective the tanks and infantry reorganize in the same manner as during daylight. (See par. 59.) Because of reduced visibility, the effectiveness of tank fire against a counterattacking enemy is limited. The movement of the tanks to firing positions is controlled by infantry guides or a dismounted member of the tank crew.

66. COLD WEATHER OPERATIONS. **a.** In military operations in extreme cold, the mission of the tank element of the infantry-tank team is the same as for normal operations. However, special equipment, special training, and special logistical procedures are necessary to overcome the technical difficulties involved. For a complete discussion of the problems inherent to cold weather operations, see FM 70-15.

b. During extreme cold, special equipment is used for tank unit supply. This equipment includes tractors, sleds, and special oversnow vehicles. In some cases even those vehicles are unable to negotiate the snow, and animals and men are used to bring up supplies. Because of the slow speed of supply vehicles and the lowered efficiency of personnel, supply takes more time

than usual. Also, more supplies are needed, especially motor fuel and rations. In some instances, supply is best done by air-drop.

c. To prevent them from freezing to death, the sick and wounded are promptly recovered, warmed, and evacuated. The evacuation of the wounded of a tank unit is done by the infantry unit with which the tanks are operating. A tank unit operating alone is provided with medical personnel and special evacuation equipment.

d. Maintenance of tanks is extremely difficult during operations in severe cold. Heated maintenance shelters are set up as close to the front lines as possible and damaged tanks are moved to these shelters for repairs.

CHAPTER 4

DEFENSIVE OPERATIONS

Section I. TANK COMPANY

67. GENERAL. The objective of defensive combat is to gain time pending the development of more favorable conditions for undertaking the offensive, or to economize forces on one front for the purpose of concentrating superior forces for a decision elsewhere. Our defensive doctrine contemplates the organization of a battle position to be held at all costs, and the use of covering forces to delay and disorganize the advance of the enemy and to deceive him as to the true location of the battle position (see FM 100-5). In defense, the regimental tank company (in conjunction with other antitank measures) offers continuous resistance to hostile tank attack throughout the battle position. In support of other elements, it stops the enemy—primarily his armored elements—forward of the battle position; repels him by fire if he succeeds in reaching it; and ejects him by counterattack if he enters it.

68. MISSION. The primary mission of the tank company of the infantry regiment in the defense is to provide antitank protection for the battle position. Tanks are also employed to reinforce the fires of the front-line battalions and to participate in counterattacks.

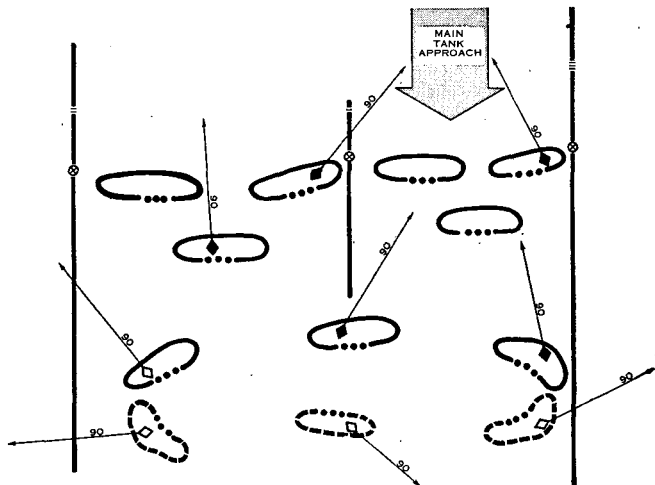
69. TANK COMPANY COMMANDER. a. The tank company commander assists and advises the regimental commander in all matters pertaining to the

antitank defense of the regimental area. He helps the regimental commander plan the antitank defense of the area. He recommends the employment of the tank company, to include the attachment of its elements to each of the battalions, the location of antitank mine fields, and the employment of attached tanks or other antitank weapons. He bases these recommendations on his analysis of the terrain resulting from his map study and personal reconnaissance to determine the location and effectiveness of existing obstacles outside and within the battle position, and the location and condition of routes of approach for enemy armor.

b. The tank company commander assists in supervising the organization of the battle position, and he coordinates the antitank defense throughout the regimental area. During the organization of the position and the conduct of the defense, the tank company commander maintains close liaison with the regimental S-3 and the regimental commander. The tank company commander insures that the tanks are used to their maximum effectiveness.

70. EMPLOYMENT. a. The regimental commander normally attaches one or more platoons of the tank company to each front-line battalion. (See fig. 32.①) If one battalion has a particularly dangerous approach for hostile armor, or if additional tanks are made available to the regiment, two platoons may be attached to one front-line battalion. (See fig. 32.②) In addition to reinforcing the fire of the main line of resistance, tanks so attached are employed to extend the depth of the antitank defense of the battalion area, and to support a counterattack by the reserve elements

of the battalion. Tank platoons not attached to the front-line battalions are attached to the regimental reserve. These platoons are employed to extend the depth of the antitank defense of the regimental area and to participate in counterattacks. (See fig. 33.)



One platoon attached to an infantry battalion.

①

Figure 32. *Employment of tanks in defense.*

b. The company headquarters of the tank company is retained under regimental control. However, the two M45 tanks assigned to company headquarters are normally used for control.

c. When additional tanks are attached to the regiment, they are normally employed as a unit with the reserve battalion, and attachments to the front-line battalions are made from the regimental tank company. In a prolonged defense in one position, tank units at-

tached to front-line battalions may be relieved by units attached to the reserve battalion. When an additional tank company is attached to the regiment, to effect a relief, the attached company relieves the regimental company as a unit, thus maintaining tactical unity.

Section II. TANK PLATOON

71. GENERAL. In the defense, platoons of the tank company normally are attached to battalions. In exceptional situations when the battle position is protected by a tank barrier and the terrain within the battle position permits tank movement, the tank platoons may be employed under tank company control.

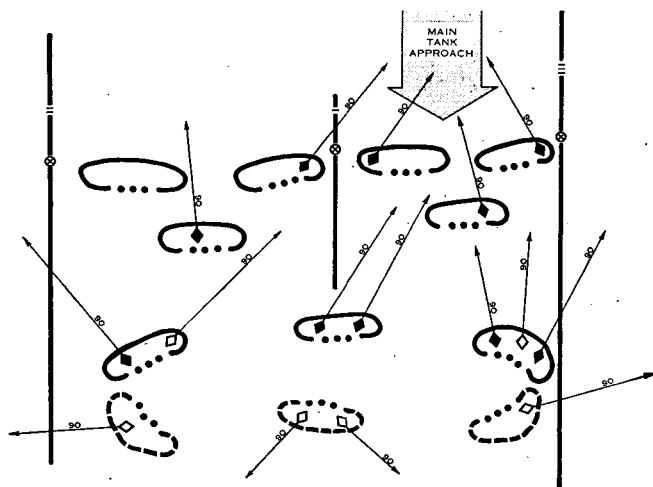
72. MISSION. In the defense the mission of the tank platoon is to provide antitank defense for the battle position, to reinforce the fires of the main line of resistance, and to participate in counterattacks.

73. EMPLOYMENT. **a. With the combat outpost.** Tank platoons or sections are frequently attached to the combat outpost of a defensive position. Tanks so employed are cited to cover tank approaches and to engage hostile targets at long ranges with anti-tank, high explosive, and machine gun fires.

b. With front-line battalions.

- (1) Tanks attached to front-line battalions are distributed laterally and in depth to stop hostile tanks before they can overrun the front-line platoon areas, and to provide depth to the antitank defense of the battalion area. (See figs. 32^① and 32.^②) From their antitank po-

sitions in front-line platoon areas, tanks reinforce the fires of the main line of resistance with high explosive and machine gun fire. Tanks occupying positions in the rear of the battalion engage hostile tanks which penetrate the battle position or threaten the flanks or rear of the battalion area. Tanks located in the battalion rear areas assist the reserve elements in blocking penetrations of the battle position by reinforcing their fires. Once these tanks in the battalion rear areas are committed to firing positions ready to block penetrations, it may be difficult to concentrate them for counterattacks.



Two platoons attached to an infantry battalion.

(2)

Figure 32—Continued.

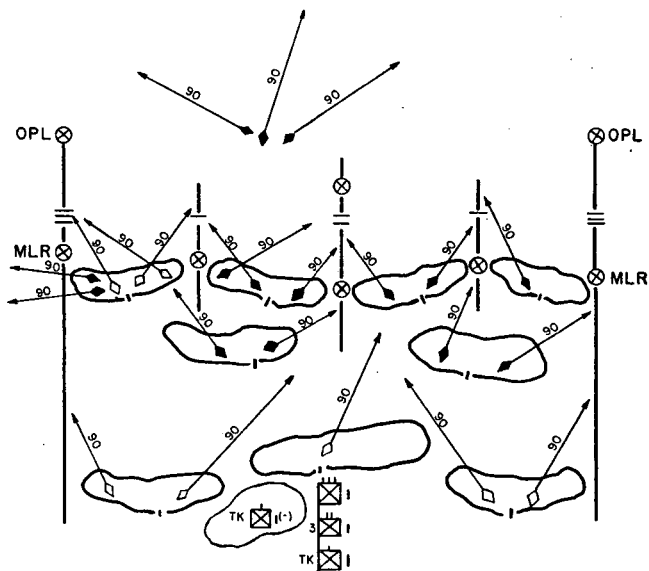


Figure 33. Employment of tank company in defense (regimental defensive sector).

- (2) When the battalion reserve launches a counterattack, those tanks which are not engaged or which can be disengaged support the counterattack by moving with the assault echelon, or by firing into the penetrated area from their primary or supplementary firing positions.

c. With the reserve battalion. Elements of the tank company attached to the reserve battalion are employed to add depth to the antitank defense of the regiment. Normally these tanks prepare and occupy firing positions. A portion of the tanks with the regimental reserve may be held mobile in an assembly area, prepared to quickly occupy positions which have been

previously selected and prepared. All tanks attached to the reserve battalion are prepared to support the battalion in counterattack.

74. TANK PLATOON ATTACHED TO A BATTALION IN DEFENSE.

a. Upon receipt of orders attaching his platoon to a battalion, the platoon leader precedes his platoon and reports to the battalion commander for instructions. The platoon leader makes provisions to move the platoon to an assembly area located in the rear portion of the battalion area. The platoon leader may accompany the battalion commander on reconnaissance or he may make an individual reconnaissance, at the direction of the battalion commander. During this reconnaissance he notes the positions to be occupied by elements of the battalion and the location of mine fields. He determines the location and effectiveness of tank obstacles and routes of approach for enemy armor. He then selects tank positions to cover these approaches by fire, and selects other positions to extend the depth of the antitank defense of the battalion area. The plans of the tank platoon leader, including the location of the tank firing positions, are closely coordinated with other antitank measures of the battalion. This coordination may be effected with the heavy weapons company commander, who usually recommends the employment of antitank mines and the 75-mm rifles.

b. The platoon leader meets his platoon in the assembly area and issues the platoon order. If time permits, each tank commander is conducted to his position over previously reconnoitered routes and is given his instructions on the ground. If time is limited, the platoon leader issues his orders at a location from which

he can point out the position the tanks will occupy. This may require that a guide conduct each tank into position.

c. The battalion defense order lists possible penetrations against which counterattacks are to be planned and states the priority in which they will be prepared. The reserve company commander prepares the details of the plans. The tank platoon leader advises and assists the reserve company commander in the use of tanks to insure that the armor protected fire power and shock action of the tanks is best used. He prepares complete plans for the support of planned counterattacks. These plans are flexible, since the number of tanks which support the counterattack varies with the conditions imposed by the situation. Some of the tanks may be retained in position to protect other portions of the battalion area; a number of the tanks may be employed to fire into the penetration or otherwise fire in support of the counterattack; and other tanks may be employed to move with the foot elements into the area of penetration. The counterattack is a limited objective attack and generally follows the plans for a normal attack. When time permits, each plan for a counterattack is rehearsed. In any event tank commanders become familiar with the routes to be used in each plan.

75 SELECTION AND OCCUPATION OF POSITIONS.

a. Primary, alternate, and supplementary firing positions.

- (1) The antitank mission of the tank platoon is the first consideration in the selection of firing positions. Tanks are located to cover by anti-tank fire the hostile tank approaches forward

of the battle position, and in depth to cover the approaches within the battle position.

- (2) Primary, alternate, and supplementary firing positions are selected and prepared for each tank. (See fig. 34.) Positions must be mutually supporting, and should afford maximum cover and concealment consistent with the accomplishment of the mission.
- (3) Frequently both cover and concealment can be increased greatly by siting a tank in position behind a hill, woods, or a building from which they can bring oblique or flanking fires against approaching enemy tanks. (See positions X and Y, fig. 34.)
- (4) For the security of the tanks the positions are located near rifle platoon positions.
- (5) Firing positions in hull defilade usually give maximum cover for a minimum of time and labor. Such positions also facilitate the movement to alternate and supplementary positions with the minimum exposure to hostile fire. When the situation requires tanks to occupy positions on forward slopes, or in the open on flat terrain, the tanks are dug in and camouflaged.

b. Occupation of positions.

- (1) There are two ways by which tanks await an enemy attack: first, individual tanks in firing positions or in the immediate vicinity thereof; and second, in unit (usually section or platoon) positions of readiness, prepared to move according to plan to any one of several previously selected and prepared positions.

(a) The first method (tank in, or nearby, firing positions) has two main advantages—The tanks are instantly ready for bringing defensive fires against an attacking enemy; and the presence of tanks is encouraging to nearby riflemen and weapon crews. Also those tanks not engaged by enemy armor can be moved to reinforce tanks in another part of the battalion sector where the enemy armored threat has materialized.

1. One of the disadvantages in this method is the longer movement time to reinforcing positions over that normally required for such movement from a position of readiness. This disadvantage is partly offset however in that some tanks are in position to engage the enemy armor while the remainder of the platoon is moving to join them.
2. Another disadvantage in this method is that all tanks cannot in every situation be mutually supporting.

(b) The second method (unit in a position of readiness) has the main advantage of furnishing the means of concentrating defensive effort at the point or area where this effort is most needed. It has the principal disadvantage that the tanks are not in position ready to fire at enemy armor thereby possibly losing a target at a critical point in the battle and risking disclosure to the enemy while moving into position. It also has the disadvantage that valuable time is

required for determining the position to which the tanks should be moved, and then for moving them to these positions.

- (2) Neither of these methods can be used to the exclusion of the other. For example, if the second method is used during daytime, the tank unit must revert to the first for its night and early dawn positions. If the enemy makes the practice of using smoke to conceal his attacks, the second method might prove to be inefficient and vulnerable. Rolling terrain which affords excellent cover and concealment for the movement of tanks from positions in readiness to firing positions lends itself to employment of the second method. Conversely, flat and open ground makes such movement difficult; on the other hand, when operating on flat and open terrain, it is usually easy to find positions where only a few stationary (and even dug in) tanks can cover all of an infantry battalion area and, at the same time, can be mutually supporting.

76. CONDUCT OF DEFENSE. a. Combat outpost.

Tanks with the combat outpost engage hostile targets at long ranges. Priority of fire is directed against hostile armored and mechanized elements. Tanks not engaged in antitank fires support the combat outpost with high explosive and machine gun fire. The combat outpost is withdrawn before engaging the enemy in close combat. Tanks are withdrawn over previously selected routes to prepared positions to cover the withdrawal of other elements of the combat outpost.

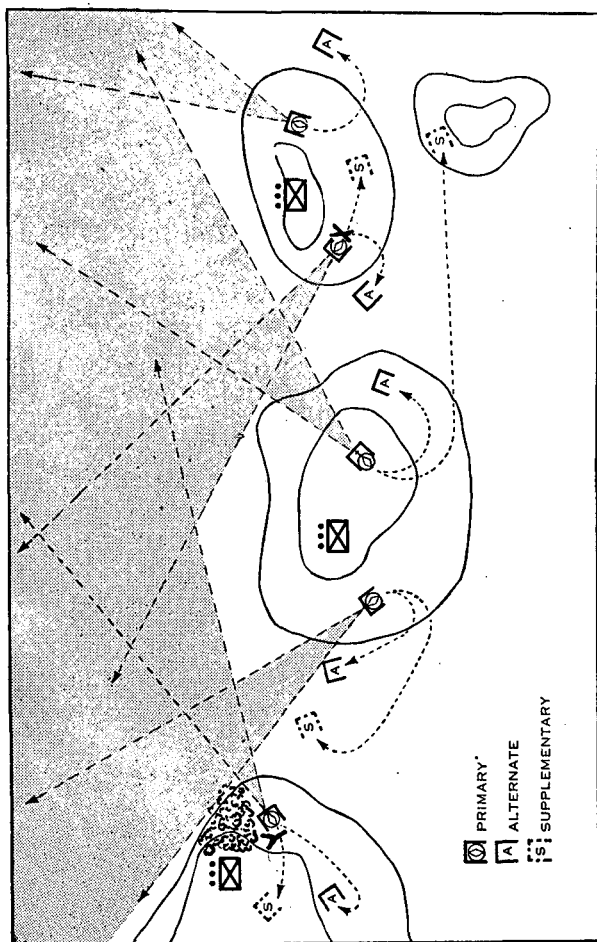


Figure 34. Tank firing positions in defense.

b. Defense of main line of resistance. The platoon leader occupies a position with his tank where he can best observe and control the action of his platoon. If the width of the sector of responsibility is great, he may assign a portion of the sector to the platoon sergeant for supervision and control. Tanks normally engage remunerative targets of enemy armor at long ranges and before the leading elements of the hostile attack have closed to within effective small-arms range of the main line of resistance. Under certain conditions the battalion fire plan includes instructions for withholding the fires of specific tanks until the other weapons on the main line of resistance open fire. Tanks not so restricted engage enemy armored targets when they come within effective range. When not engaged with armored targets, tanks located in forward areas reinforce the fires of the main line of resistance with high explosive and machine-gun fire. Tanks located in rear of the main line of resistance occupy positions that add depth to the antitank defense of the position and which assist in blocking hostile penetrations.

c. Defense of regimental reserve area. Tanks attached to the reserve battalion initially occupy positions that add depth to the antitank defense and provide antitank protection to the flanks and rear of the regimental sector. Some tanks may later move to other positions which block threatened penetration of the regimental rear area. Tanks attached to the reserve battalion support the foot elements in the same manner as tanks attached to a front-line battalion.

d. In support of counterattacks.

- (1) The tanks which are attached to front-line battalions and which are not engaged, or which

can be disengaged are prepared to support counterattack by the battalion reserve. Some of these tanks may best support the counterattack from their primary or supplementary firing positions. However, when they give this type of support, they may not be able to give quick support during the early stages of the reorganization of the main line of resistance. To give this early support, and to increase the shock action of the counterattack, as many of the tanks as possible accompany the assault units.

- (2) All tank units available to the reserve battalion are employed to give support to the assault echelon. This support may be in the form of moving with the assault echelon, supporting the assault from firing positions, executing a separate converging attack on the objective, or a combination thereof.

Section III. RETROGRADE MOVEMENTS

77. EXPLANATION AND PURPOSE. A retrograde movement is a movement to the rear or away from the enemy. Retrograde movements include withdrawals from action, delaying actions, and retirements.

a. A withdrawal from action is the breaking off of combat with a hostile force. It may be followed by a retirement, or by the occupation of a rear position or area from which subsequent offensive or defensive action is conducted.

b. Delaying action is employed to retard the enemy's advance and to gain time without becoming decisively engaged. Such delay is usually obtained by

forcing the enemy into early deployment and time consuming preparations for battle.

c. A retirement is an orderly withdrawal of troops according to their own plan and without pressure by the enemy. It follows a withdrawal from action and commences when contact with the enemy has been completely broken.

78. DAYLIGHT WITHDRAWAL. The regiment may be required to break contact with the enemy and withdraw protected only by its own covering force. The front-line battalions execute a daylight withdrawal from action by withdrawing each echelon under the protection of the next unit to the rear. Each front-line platoon withdraws under the protection of the battalion covering force (battalion reserve). The regimental covering force (reserve battalion) then protects the withdrawal of the battalion covering force. When the front-line battalion has reformed, it may protect the withdrawal of the reserve battalion. Battalions thus shoulder their way to the rear until contact is broken. The difficulty of control and the limited time for reconnaissance in planning a daylight withdrawal require that plans for the withdrawal be as simple as possible. Orders are brief and clear.

a. Mission of tanks. In a daylight withdrawal tanks assist the units to which they are attached to break contact, and cover the withdrawal. They do this by covering the withdrawal of the unit with fire, or by making limited objective attacks. Smoke may be useful in covering the daylight withdrawal of a unit over terrain exposed to enemy fire. Offensive action to assist in the withdrawal is usually taken by tanks attached to the

reserve battalion, or by tanks attached or assigned to larger units.

b. Tank company commander. In a daylight withdrawal, the tank company commander recommends to the regimental commander the employment of anti-tank mines to block avenues of tank approach within the zone of withdrawal; any special antitank measures to protect the routes of withdrawal; and offensive action within the capabilities of the tank company to assist in breaking contact.

c. Employment of tanks.

- (1) Tank platoons attached to battalions for the defense normally remain attached for the initial stages of the withdrawal. When front-line battalions have withdrawn through the regimental covering force, the tanks may be regrouped and employed to best facilitate the continuation of the withdrawal. When the situation permits, tanks attached to the regimental covering force conduct offensive action, such as short limited objective or flank attacks, to assist the front-line battalions to break contact.
- (2) Tanks attached to front-line battalions give fire support to cover the withdrawal of the front-line companies. Tanks not located within front-line company areas are normally attached to the battalion covering force. Those tanks initially located within front-line company areas are usually attached to those companies until the companies have withdrawn behind the battalion covering force. These tanks are then attached to the battalion cover-

ing force or otherwise employed to support the withdrawal of the battalion.

- (3) After the battalion covering force withdraws behind the regimental covering force, tanks attached to the front-line battalions may continue to cover the withdrawal of the battalions, they may be regrouped to execute a separate mission, or they may be attached to the regimental covering force.
- (4) Tank platoons attached to the regimental covering force reinforce the fires protecting the withdrawal of front-line units. The tanks assist the covering force to break contact, and they cover its withdrawal in the same manner as the platoons attached to the front-line battalions. When the situation permits, one or more platoons attached to the regimental covering force may make limited objective attacks to assist the front-line battalions to break contact.

79. NIGHT WITHDRAWAL. A front-line battalion executes a night withdrawal by simultaneously withdrawing all of its elements except the troops left in place as a covering force. The success of the withdrawal depends upon coordination and secrecy. The withdrawal of troops and weapons, and their subsequent assembly, is conducted as quietly as possible. Troops of the covering force, by their fires and patrolling, simulate the normal activities of the battalion. Supporting weapons located within the battalion area are usually attached to the battalion.

a. Mission of tanks. The mission of tanks supporting a night withdrawal is to participate in special tactical measures during daylight, preparatory to withdrawal. These include limited objective attacks or raids, and, under favorable conditions, the support of the covering force by adding depth to the defense of critical tank approaches.

b. Tank company commander. The tank company commander assists and advises the regimental commander in the employment of the tanks in special tactical measures just before night withdrawals; the employment of tanks with the covering force; the disposition and employment of other tanks which are not attached to the covering force; and the disposition and employment of the tank company in the assembly area and during the retirement, or on the new defensive position or assembly area. His recommendations include the time of withdrawal and the measures for maintaining secrecy.

c. Employment of tanks.

- (1) Limited objective attacks and raids may be made just before dark to confuse and disrupt the enemy before the night withdrawal. Tanks employed in attacks or raids are subsequently withdrawn to the rear, preparatory to withdrawal, or to operate with the covering forces.
- (2) Elements of the tank company may be attached to the covering force. Avenues of approach which can be used by hostile armored vehicles at night are normally defended by hand-carried antitank weapons. Tanks attached to the covering force are usually employed with the

support elements to add depth to the defense of critical tank approaches.

80. DELAYING ACTION. a. General.

- (1) Delay of an advancing enemy may be accomplished by offensive action, by defensive action in one position, by defensive action in successive positions, or by a combination of these methods.
- (2) Units may be expected to conduct delaying action on frontages much greater than those of a sustained defense. Battalions occupy the extended frontage by placing a greater number of platoons on the line of resistance with greater interval between the platoons.
- (3) Positions should afford the maximum opportunity for flanking fires. Positions astride roads should be particularly avoided.
- (4) Whenever practicable, the line of resistance is located near a topographical crest to facilitate long-range fires and to provide immediate defilade for withdrawal to the next delaying position.
- (5) In delaying actions, supporting weapons, riflemen, and automatic weapons open fire on hostile security elements at maximum effective ranges. When the enemy launches a coordinated attack in superior strength, a force delaying in successive positions ordinarily withdraws without accepting close combat. The withdrawal to the next delaying position begins before enemy rifle fire becomes effective.

b. Mission of tanks in delaying action. The mission of the tanks in a delaying action is to reinforce the fires of the line of resistance, or to delay the enemy by quick direct thrusts or surprise flank attacks.

c. Employment of tanks. In a delaying action, elements of the tank company are usually attached to the units which they support. The tank company or its elements may delay the enemy by limited objective, or feint, attacks. When not engaged in offensive action the tanks occupy firing positions and reinforce the fires of the line of resistance by engaging the enemy at long ranges with antitank, high explosive, and machine gun fires.

81. RETIREMENTS. A retirement may follow a withdrawal from action. It begins when contact with the enemy is completely broken. The mission and the employment of tanks in a retirement is generally the same as in other marches.

CHAPTER 5

SIGNAL COMMUNICATION

82. GENERAL. a. The details of installing, operating, and maintaining communication systems are covered in pertinent manuals.

b. SCR and equipment model numbers contained in this chapter are those in present use and changes in these numbers due to modifications will not materially change the types.

c. The means of signal communication used by the tank company of the infantry regiment include radio, wire, messenger, visual, and sound.

83. RESPONSIBILITY FOR SIGNAL COMMUNICATION. Communication is a function of command. The company commander is responsible for the establishment, operation, and maintenance of the communication system of his company and for its efficient functioning as a part of the regimental communication system.

84. COMMUNICATION DUTIES OF TANK COMPANY PERSONNEL. a. The company commander is charged specifically with the maintenance of adequate communication within his organization, but it is only through the combined effort of all concerned that communication is maintained, especially during rapid movement. Communication is essential. If contact is lost, its re-establishment is sought by both the subordinate element and the company headquarters.

b. The communication chief is the principal assistant to the company commander in maintaining communication. His duties are comparable to those of a communication officer in a higher echelon. His principal duties are—

- (1) Advises the company commander in all matters pertaining to signal communication, including the state of training, functioning of channels of communication, and the condition of signal equipment.
- (2) Supervises the tactical use of the means of communication employed within the company.
- (3) Supervises the communication training of company personnel.
- (4) Supervises radio maintenance and arranges for necessary maintenance by higher echelons.
- (5) Insures that all authorized communication equipment is on hand and assists the supply sergeant in procuring signal supplies.
- (6) Procures signal orders, brevity and operations codes, and disseminates the information contained in them.
- (7) Supervises the establishment of communication with supported units.

c. The bugler is trained as a guide, observer, and messenger, and is the principal assistant to the communication chief. He is trained to install, operate, and maintain all items of signal equipment issued to the company. He drives the company commander's $\frac{1}{4}$ -ton truck and operates its radio set.

d. The radio repairman makes periodic preventive maintenance checks and repairs on all of the radio equipment issued to the company. He keeps records

See 111

of preventive maintenance checks, noting any repairs or modifications to individual items of equipment. He maintains the authorized stock of replacement parts, and insures that they are protected against damage and loss. He also is trained to install, operate, and maintain all items of signal equipment issued to the company. He drives the executive officer's $\frac{1}{4}$ -ton truck and operates its radio.

e. All personnel of the company are trained to operate the various means of communication employed within the company. They are particularly trained in voice radio operation, radiotelephone procedure, communication security, and visual signaling.

85. RADIO a. Radio is the principal means of communication employed by the tank company. It is used for tactical control, fire control, exchange of information, administration, and liaison. Radio is used between rapidly moving units where the employment of wire or other means of signal communication is difficult, over large areas where wire or other means are impracticable, and between air and ground. Under certain conditions radio may be the only available means of communication.

b. Radio has one distinct advantage over other types of signal communication. This is the relatively high degree of mobility and flexibility of the system, resulting from the fact that no physical circuits are necessary to connect the related stations. There are, however, certain important limitations applicable to radio communication. These are—

- (1) Susceptibility to interference by atmospheric conditions, by enemy communication and jam-

ming stations, and by friendly stations.

- (2) Range of communication is affected by the terrain.
- (3) The volume of cryptographed messages made available to the enemy for study, possibly resulting in an eventual breakdown of the code or cipher.
- (4) Disclosure (through the enemy's position-finding equipment) of the approximate number, type, and locations of operating radio transmitters.
- (5) Disclosure (through the enemy's traffic analysis) of the disposition and probable movement of troops. This method of obtaining intelligence by the enemy does not require direction-finding equipment or cryptographic analysis.

These limitations are reduced by improving the general technique of the individual radio operator (including tank and vehicle commanders), with particular regard to radio operation and radiotelephone procedure, signal intelligence, and communication security.

86. RADIO SETS ISSUED TO TANK COMPANY.

a. Radio sets SCR-508 and SCR-528.

- (1) These are frequency-modulated sets designed to provide radio-telephone communication between vehicles and units in all armored echelons. (See figs. 35 and 36.) The SCR-508 consists of a transmitter, BC-604, and two receivers, BC-603, together with the necessary associated operating installation equipment. The SCR-528 is the same except that only one receiver is provided.

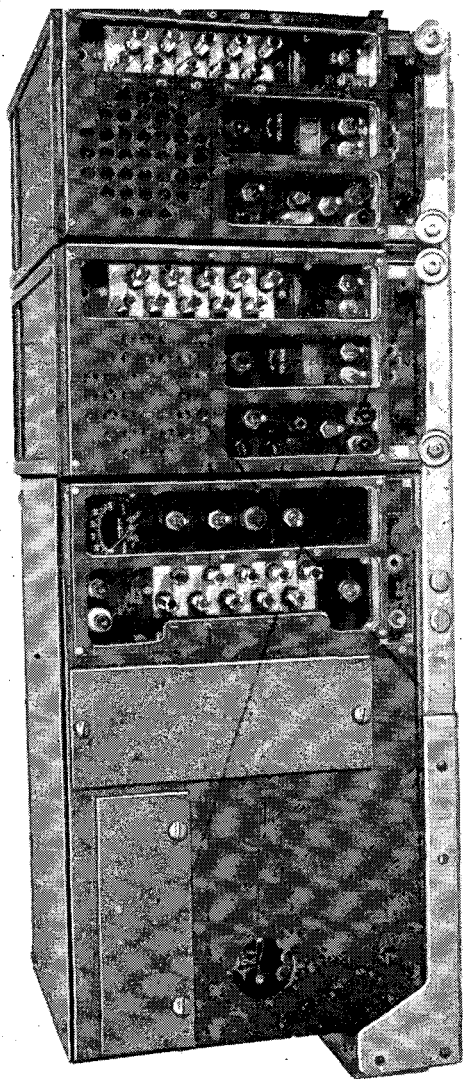


Figure 35. Radio set SCR-508.

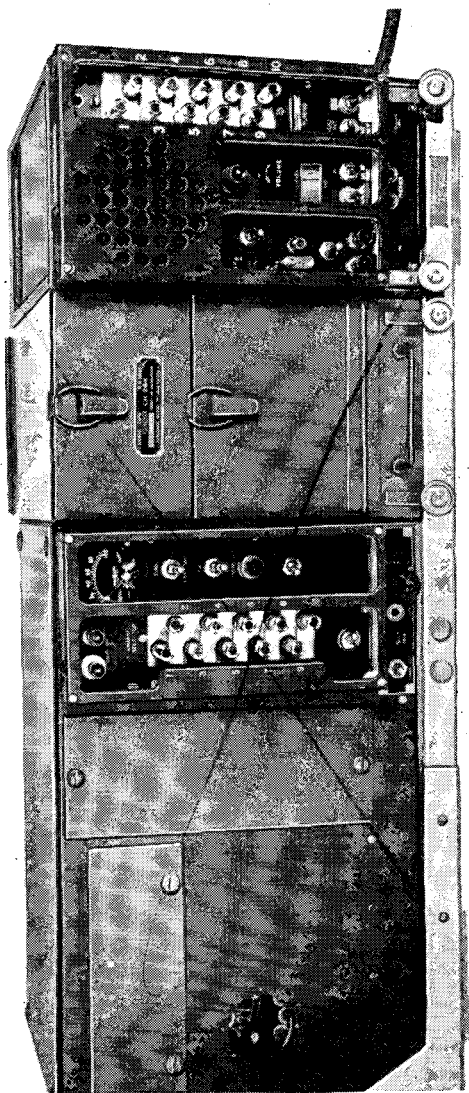


Figure 36. Radio set SCR-528.

- (2) The two tanks in company headquarters and the platoon leaders' tanks are equipped with the SCR-508. An SCR-508 at regimental headquarters maintains direct communication with the tank company. The individual tanks of the tank company, the tank recovery vehicle, and the armored utility vehicle are equipped with the SCR-528.
- (3) The principal features of these sets are the 10 preset channels which are selected by push buttons. The frequency range is from 20.0 to 27.9 megacycles, divided into 80 channels (crystals). (See fig. 39.)

b. Radio set SCR-510. This is a low-power, frequency-modulated, pack or vehicular receiver-transmitter designed to provide radiotelephone communica-

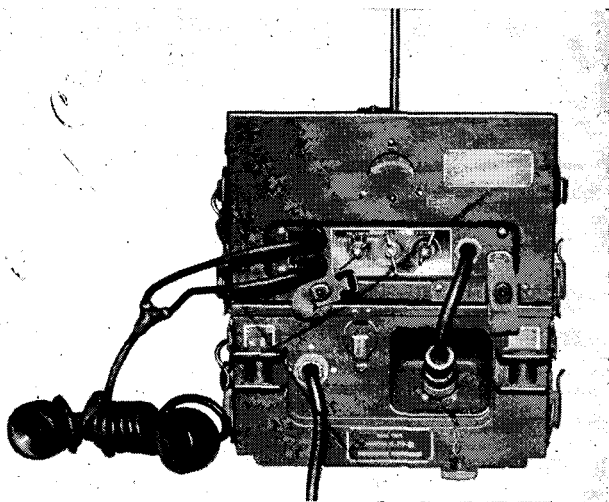


Figure 37. Radio set SCR-510.



Figure 38. Radio set AN/VRC-3.

Radio set	Type of operation	Type of emission	Frequency range	Operating range	Source of power	Channels
SCR-536.....	Portable....	AM voice....	3.5-6.0 mc....	1 mile.....	BA-37 and BA-38.....	50 (1 preset).
AN/GRC-9...	Ground or vehicular.	AM voice CW and MCW..	2.0-12.0 mc...	Stationary: CW...75 miles Voice...25 miles Moving: CW...30 miles Voice...15 miles	Ground: GN-58 and BA-45. Vehicular: 6-, 12- or 24-V storage battery through PE-237.	Continuous tuning or 6 crystals.
SCR-506.....	Vehicular...	AM voice and CW.	Transmitter: 2.0-4.5 mc. Receiver: 2.0-6.0 mc.	Stationary: CW...75 miles Voice...25 miles Moving: CW...35 miles Voice...15 miles	12- or 24-V storage battery through dynamotor.	Continuous tuning and 4 preset.
SCR-300.....	Portable....	FM voice.....	40.0-48.0 mc..	3 miles.....	BA-70 or BA-80.....	41 numbered (continuous tuning).
AN/VRC-3...	Vehicular...	FM voice.....	40.0-48.0 mc..	3 miles.....	6-, 12- or 24-V storage battery through PP-114/VRC-3.	41 numbered (continuous tuning).

SCR-508.....	Vehicular...	FM voice.....	20.0-27.9 mc..	10-15 miles.....	12- or 24-V storage battery.	80 (10 preset) (2 receivers).
SCR-510.....	Portable or vehicular.	FM voice.....	20.0-27.9 mc..	5 miles.....	Portable: BA-39, BA-40 and BA-41. Vehicular: 6-, 12- or 24-V storage battery through PE-120.	80 (2 preset).
SCR-528.....	Vehicular...	FM voice.....	20.0-27.9 mc..	10-15 miles.....	12- or 24-V storage battery.	80 (10 preset)
SCR-608.....	Vehicular...	FM voice.....	27.0-38.9 mc..	10-15 miles.....	12- or 24-V storage battery through dynamotor.	120 (10 preset) (2 receivers).
SCR-619.....	Portable or vehicular.	FM voice.....	27.0-38.9 mc..	5 miles	6-, 12-, or 24-V storage battery through PE-219.	120 (2 preset).

Note. Operating ranges given will vary considerably according to terrain and atmospheric conditions and generally are reduced when one or both radio stations are in motion.

Figure 39. Characteristics of radio sets.

tion over a range of approximately five miles. (See fig. 37.) These sets are installed in the $\frac{1}{4}$ -ton truck provided for the company commander, platoon leaders, and the executive officer, and furnish a means of communication for them when they dismount from their tanks to use the greater mobility of the $\frac{1}{4}$ -ton truck. (See fig. 39.)

c. Radio set AN/VRC-3. This is the vehicular adaptation of radio set SCR-300. (See fig. 38.) It consists of a low-power, frequency-modulated receiver-transmitter and accessories. It is designed for radio-telephone communication over short distances between tanks and foot troops equipped with the SCR-300. The frequency range is from 40.0 to 48.0 megacycles, divided into 41 numbered channels. The desired channel is manually selected by the operator. The SCR-300 and AN/VRC-3 both use the radio receiver and transmitter, BC-1000-A. The principal difference in the two sets is that the SCR-300 operates on a dry-cell battery, while the AN/VRC-3 operates on a 6, 12, or 24-volt vehicular storage battery through the vibrator power supply. All tanks in the company are equipped with this radio. (See fig. 38.)

d. Interphone system. Each tank is equipped with an interphone system which permits conversation between the crew members. It also permits them to receive individually all incoming radio messages over the tank command net. Radio transmitter BC-604 serves as interphone amplifier. An external telephone station is mounted on the rear of the tank to permit communication between troops on the outside of the tank and the crew members inside the tank.

87. OTHER MEANS OF COMMUNICATION.

a. Wire.

- (1) Since wire cannot be used by tanks in fast-moving situations, it is a supplementary means of communication within the tank company. However, in a stable situation wire communication is desirable. A reasonable proficiency in the wire communication used in the tank company does not require the degree of training that is demanded by radio communication. The over-all security of wire is much higher than that of radio.
- (2) The wire equipment of the tank company consists of the lightweight emergency switchboard SB-18/GT, telephone EE-8-() and a sufficient quantity of field wire, type WD-1 ()/TT, to establish a limited wire net. (See fig. 40.) The communication chief, the bugler, or other available personnel install and maintain the wire lines and operate the switchboard.

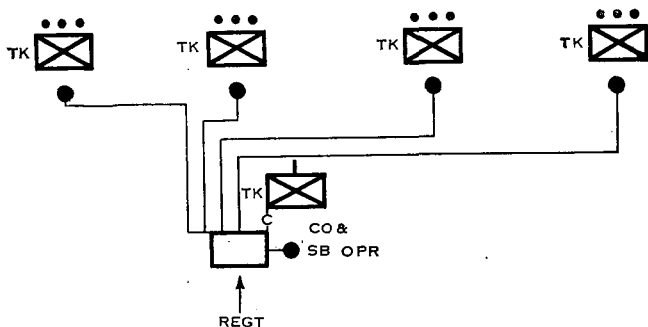


Figure 40. Tank company wire net.

b. Messenger. Although no messengers are provided in the tables of organization and equipment, available personnel and $\frac{1}{4}$ -ton truck drivers are used as foot or motor messengers.

c. Visual. Visual signaling is an auxiliary means used within the tank company to supplement radio communication. Its use depends upon the type of warfare, the proximity of the enemy, the terrain, and the weather. It is well adapted to rapidly transmitting prearranged messages over short distances, but it is not ordinarily used when it is likely to disclose a position or to draw fire on friendly troops. Types of visual signals employed by the tank company include arm and hand signals, flags, pyrotechnics, panels, and lights.

- (1) Flag set M-238 consists of a carrying case and a red, orange, and green flag. It is issued for use by the tank crew to display a limited number of signals. Signal flags are used for control on the march, in assembly areas, at lines of departure, during pursuit, and on other occasions when the usual means of communication are not practicable. When within hostile observation, signal flags may draw enemy fire, making their use undesirable for most forward elements.
- (2) The use of pyrotechnics conforms to the current pyrotechnic code of the unit, which is normally published in the signal operation instructions (SOI). Their use is limited by the number or type of signals and conditions of light and weather.
- (3) Panel set AP-50-A, consisting of a carrying

case and two colored marking panels, may be used to indicate the progress and position of troops in combat, to identify friendly vehicular columns on a road, or to mark specific vehicles in a column. The meanings for various displays and how and on what type vehicles the panels are to be displayed are covered in the SOI and standing signal instructions (SSI).

- (4) Lights may be employed to transmit simple control messages during darkness when the tactical situation permits.

d. Sound. Sound communication is used only in emergencies. Its chief value is economy of time, personnel, and equipment. It is used for giving alarms, for attracting attention, or for transmitting short prearranged messages over short distances.

88. RADIO NETS. **a.** A radio net is organized for command, fire control, and the exchange of information. It consists of two or more stations operating together on the same frequency. The composition of the radio nets in the tank company is prescribed by the company commander, based on normal employment and the availability of frequencies. He may vary them to meet the requirements of the tactical situation.

b. To have centralized control and to maintain discipline in a net, a *net control station (NCS)* is required. This NCS has full authority in matters of technical control, but none over internal organization or tactical employment of any station. The NCS is usually the station of the major headquarters represented in the net. Other stations in the net are known as subordinate or second-

ary stations. It is not uncommon to have one station that is the net control station of one net and at the same time is a subordinate station in another net. This is frequently the case in the tank company.

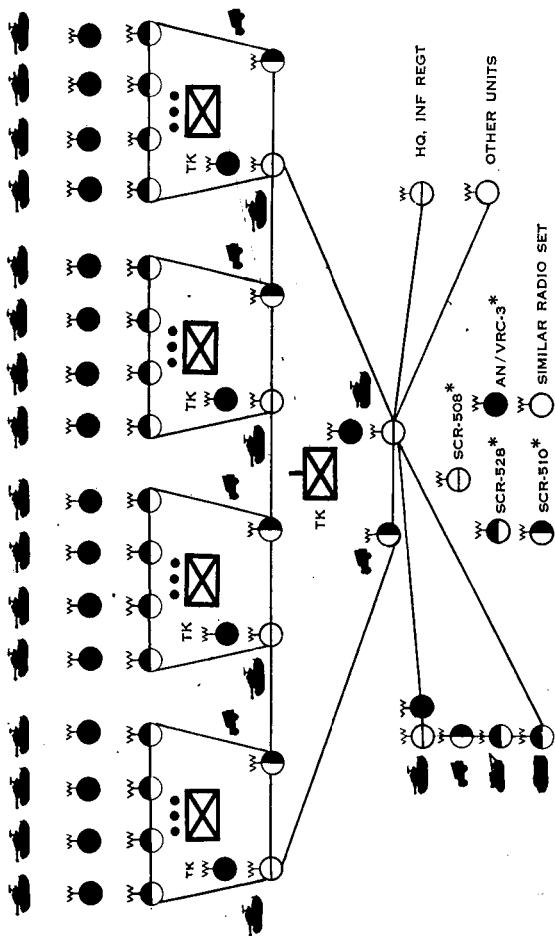
c. Constant changing of the tactical situation and the employment of the tank company requires its radio nets to be flexible so changes may be made smoothly and without undue delay.

d. Figure 41 shows type radio nets indicating how the radio equipment may be employed. All company radio sets are operated on the same channel if only one channel is available; however, separate platoon and company command nets may be organized if sufficient channels are assigned. If only two channels are available, one is used as the command channel for all combat vehicles, while the other may be used as an administrative net and as the alternate channel for the command net. The company commander prescribes the composition of the radio nets, depending upon the availability of frequencies.

e. Radio set AN/VRC-3 is used by the tank company in conjunction with its portable counterpart, the SCR-300, to provide radio communication between tanks and foot troops. The responsibility for establishing communication lies with the commander of the supporting or attached tank element. Foot troops may also communicate with the crews of individual tanks through the external telephone mounted on the rear of each tank.

89. RADIO FREQUENCIES AND CHANNELS.

a. Radio frequency and channel assignments are published in the SOI. Depending upon availability, alternate frequencies may be assigned on which to oper-



*OR ITS EQUIVALENT

Figure 41. Tank company type radio nets.

ate when the primary frequency is jammed or otherwise unusable. The shift from one frequency to another is directed by the NCS, using a prearranged plan. Frequencies are also changed, as directed in the SOI, to maintain communication security.

b. When a new item for the SOI is published which changes radio channel assignments, the radio repairman changes crystals and properly tunes and adjusts the sets before they are again placed in operation. This time-consuming task is considered in determining the time required to prepare for an operation. The company commander anticipates the nets in which the tanks may be required to operate and causes the channel assignments of these nets to be set up on the company radios.

90. TACTICAL CALL SIGNS. **a.** Every radio station is given a call sign which is published in the SOI. For communication security, a frequent change in call signs is desirable.

b. A separate call sign is assigned to the tank company and is used by all company sets, including the platoon and the individual tanks. Units are identified by a numeral or letter added to the company call sign. The following is a workable assignment which may be used as a guide:

Company net call.....	BOZO
Company commander.....	BOZO 1
Company commander's tank.....	BOZO 2
Company commander's $\frac{1}{4}$ -ton truck.....	BOZO 3
Company headquarters tank.....	BOZO 4
Executive officer.....	BOZO 5
Executive officer's $\frac{1}{4}$ -ton truck.....	BOZO 6
Tank recovery vehicle.....	BOZO 7
Armored utility vehicle.....	BOZO 8

	<i>1st plat</i>	<i>2d plat</i>	<i>3d plat</i>	<i>4th plat</i>
Net call.....	BOZO 9	BOZO 10	BOZO 11	BOZO 12
Plat ldr.....	BOZO 13	BOZO 14	BOZO 15	BOZO 16
(personally)				
Plat ldr's.....	BOZO 17	BOZO 18	BOZO 19	BOZO 20
$\frac{1}{4}$ -ton truck				
Tank No. 1.....	BOZO 21	BOZO 22	BOZO 23	BOZO 24
Tank No. 2.....	BOZO 25	BOZO 26	BOZO 27	BOZO 28
Tank No. 3.....	BOZO 29	BOZO 30	BOZO 31	BOZO 32
Tank No. 4.....	BOZO 33	BOZO 34	BOZO 35	BOZO 36
Tank No. 5.....	BOZO 37	BOZO 38	BOZO 39	BOZO 40

91. OPERATION OF RADIOTELEPHONE NETS.

a. Radio is the principal means of communication within the tank company. Its use frequently requires all of the company's radio sets to be operated in a single radio net. Every person who might use a radio set is trained in its capabilities and limitations, as well as in all other basic rules and operating procedures that pertain to radio net operation. Radio nets within the tank company are operated as prescribed in the current Radio Telephone Procedure Publication. All users of voice sets become familiar not only with the net organization of their own unit, but also with the other nets in which they are likely to operate.

b. Prolonged conversations are profitable to and welcomed by enemy listening stations. Therefore, because of the large number of radios and the great amount of traffic in radio nets, radiotelephone procedure is rigidly followed and messages are brief and explicit. Proper discipline in radio nets is achieved by training all officers and men in the proper technique and procedure. The operator observes these rules:

- (1) Makes sure the radio set is on the proper channel.

- (2) To make sure the channel is clear, he listens in on the channel for 2 or 3 seconds before turning on the transmitter.
- (3) Keeps messages brief.
- (4) Allows a second or two to elapse after closing the transmitter switch before starting to talk.
- (5) Speaks clearly and distinctly into the microphone.
- (6) Always uses assigned call words. Never uses names of personnel or organizations.
- (7) Never leaves the radio unattended unless permission to do so has been granted by the NCS.
- (8) Listens to all transmissions, gaining valuable information.
- (9) Selects proper radio station locations.
- (10) When the command post is established inside a tent or building, uses remote control equipment.
- (11) Observes radio discipline.
- (12) Uses only authorized codes and ciphers.
- (13) Makes sure that volume and squelch controls are properly adjusted.
- (14) If the station called fails to answer immediately, waits a minute or two. (The operator might be transmitting on another net—particularly if he is using an SCR-508.)

92. COMMUNICATION SECURITY. a. Communication security includes all measures which deny unauthorized persons information of military value derived from our communications. Communication security includes cryptographic security, transmission security, and physical security. Because of the great

number of radio sets used, and since most vehicle commanders are operators of radios, practically all personnel of the tank company are trained in the principles of communication security.

b. The company commander is responsible for the maintenance of communication security, and is assisted in taking the necessary precautions by the communication chief. The attainable degree of security depends upon a balance between security standards and time limitations. Reasonable security at all times is the goal. The company commander or his authorized representative may order the transmission of messages in plain language when—

- (1) The tactical situation is such that time cannot be spared for cryptographing.
- (2) The information to be transmitted, if intercepted by the enemy, cannot be acted upon in time to influence the situation.

c. Written messages are marked "Send in clear" over the signature of the commander or his authorized representative.

d. Responsibility for transmissions in the clear by radio-telephone rests with the officer or noncommissioned officer in charge of the transmitting station. When written or oral messages in the clear are authorized, they do not disclose future plans or locations of friendly troops and installations. The use of prearranged messages in the clear expedites transmission. Commanders of units smaller than a division may authorize normal transmission in clear text for messages which are to be acted upon immediately in rapidly moving situations.

93. AUTHENTICATION OF MESSAGES. a.

Authentication assures the authenticity of a message, radio station, or person. Without it, enemy stations representing themselves to be friendly may send false messages or orders, or may accept messages, thereby preventing or delaying their delivery to the proper destination. Everyone handling messages, whether he is the writer, recipient, radio operator, or user of radio or wire telephone, assures himself by proper authentication that communication is with or from the proper station or person. Authentication by some reliable method becomes a habit. Various methods of authentication are available, and the current method to be used by the unit is listed in the unit SOI. Authentication is particularly important in these situations:

- (1) When instructions are issued to open or close a radio or wire system.
- (2) When a radio net is opened.
- (3) When a station enters a radio net.
- (4) When messages are transmitted in the clear.
- (5) When an especially important message is transmitted.
- (6) When a message appears to rescind, change, or conflict with previous orders.
- (7) When instructions are issued to change radio frequencies or call signs, and when initial station contact is made after such change.
- (8) When radio traffic is transmitted to silent stations.
- (9) When radio silence is directed or lifted.
- (10) When enemy activity is suspected in a radio or wire system.

b. Personnel are trained to use authentication systems. Messages and operating conditions which simulate different situations are introduced early in the training period. Thereafter, practice in authentication is continuous.

94. COMMAND POSTS. The tank company command post is normally located near the regimental command post except when the entire company is committed in the same action or when the presence of the command group is required to control the employment of a portion of the company.

95. ORDERS. a. The regimental operations order contains the signal instructions in paragraph 5. The operations order of the tank company contains the same general information, altered to apply specifically to the tank company. It includes the index to the current SOI; restrictions, if any, on the use of radio; special pyrotechnic signals; and the initial location of the command post. It may also prescribe subsequent locations of the command post (axis of signal communication).

b. The SOI is issued for the technical control and coordination of the overall signal system. It contains the information necessary for the coordinated employment of the various means of communication. The standing signal instructions (SSI) is published in conjunction with the SOI and contains complete instructions on the use of the items appearing in the SOI.

96. RADIO MAINTENANCE. a. The reliable operation of radio equipment is obtained through proper use, care, and maintenance. The company commander

exercises general supervision of radio care and maintenance.

b. Radio maintenance in the tank company includes preventive maintenance performed by the operator (including the tank or vehicle commander) and organizational maintenance performed by the company radio repairman. Maintenance which cannot be performed within the company is done by higher echelon repairmen.

c. The following principles are used to determine the echelon in which a specific radio maintenance task is performed:

- (1) Maintenance is performed in the lowest echelon consistent with the capabilities of tools and test equipment, ability of personnel, availability of replacements, parts, time, and the tactical situation.
- (2) Maintenance normally performed by a higher echelon is not performed by a lower echelon at the expense or neglect of its normal operation.
- (3) Spare equipment is used for replacement when time is not available for repair.
- (4) The nearest facility capable of performing the maintenance is used.

d. Supervision of radio maintenance requires both technical control and command inspection. Preventive maintenance by the radio operator or vehicle commander is checked by the company radio repairman. Within the division an inspection team may be used to check the work of the units. The company commander inspects for: adequate working facilities, demonstration of satisfactory operation, serviceability and clean-

liness of equipment, presence of all spare parts, and proper installation.

e. Preventive maintenance is performed in all echelons. Careful operation, prompt reporting of any trouble, and thorough cleaning and tightening of parts by the operator are major steps in keeping sets in operation. Preventive maintenance is performed before and after each operation of the equipment, and at other necessary times.

f. The company radio repairman keeps a record of all radio sets in the company and schedules periodic maintenance checks. These checks are normally performed at two week intervals on each radio set. Deficiencies are recorded and immediately corrected.

97. COMMUNICATION TRAINING. The effectiveness of a unit's communication system can be measured by the standard of training of its communication personnel. The tank company's extensive use of radio, supplemented by other means of communication, makes it imperative that all personnel in the company be trained to use every means of communication.

a. Individual training. During individual training, personnel learn the importance of communication, the means of communication, including the capabilities and limitations of each, and become individually proficient in their use. Technical skills are acquired and tests are used to determine the proficiency of each man. This training is coordinated with the regimental plan of communication training.

b. Unit training Training in the use of each means of communication is conducted during unit training. It stresses training in the operation of radio-

telephone nets (emphasizing voice radio operation), radiotelephone procedure, communication security, and visual signaling

c. Combined training. In combined training the tactical application of means of communication is stressed. Tactical exercises are scheduled covering all ways in which the tank company might be employed. By coordinating with the regimental S-3, the tank company commander arranges for maximum participation in exercises from company to regimental combat team level. These exercises familiarize the men with the methods of operation, and they increase the effectiveness of the infantry-tank team.

CHAPTER 6

SUPPLY, MAINTENANCE, VEHICULAR RECOVERY, AND MEDICAL SERVICE

Section I. SUPPLY

98. SUPPLY RESPONSIBILITY. Supply is a responsibility of command. The company commander is responsible for the initial supply and, except as discussed in this chapter, for the replenishment of all classes of supply to the company and to attached units. Requisitions or informal requests are forwarded early enough to permit the regimental S-4 to distribute supplies in time to meet the needs of the company.

99. SUPPLY MEANS. **a.** To effect supply the company commander is assisted by the executive officer (motor officer), the supply sergeant, the motor sergeant, the mess steward, the communication chief, and other designated personnel.

b. Nonorganic transportation for supplying the company is furnished by the transportation platoon of the service company. This platoon includes a tank company section which assists in the supply of class III, and class V items. The regimental service platoon also includes a tank maintenance section.

100. CLASS I SUPPLY. **a.** For definition, classes, and methods of supply, see FM 7-30.

b. Kitchen vehicles and mess personnel of the tank company normally operate from the regimental field train bivouac. When elements of the company are em-

ployed far away from the company mess location, it is often impracticable for them to be fed by their own company, and they are fed by the unit to which they are attached. In any case the tank company commander assures himself that all elements of the tank company are fed. If for any reason it is impracticable to pre-plan the mess arrangements, leaders of tank elements attached to other units contact the commanders of these units, and arrange for the feeding of their men.

101. CLASS II AND CLASS IV SUPPLY. See FM 7-30.

102. CLASS III SUPPLY. a. See FM 7-30.

b. Tanks are supplied with class III items before and immediately after operations.

c. The fuel and lubricant vehicles of the tank company section of the regimental service platoon draw gasoline from the division or army class III supply point by exchanging empty 5-gallon drums for full ones. At the same time they draw other class III supplies from these supply points. On the march these vehicles, carrying a basic load of class III supplies, move with the regimental combat trains under control of the regiment. In certain situations, such as when the tank company trails the regimental service elements, they may be attached to the tank company.

d. When combat is imminent, these vehicles may be moved to the regimental field train bivouac and later dispatched to the tank company area, or they may be moved directly to the tank company area for resupply. When final precombat supply has been accomplished, these vehicles are moved to the regimental train bivouac from which they operate. When required for

closer support of tanks in action, they are moved to a forward regimental class III supply point.

(e.) During combat, the fuel and lubricant vehicles are dispatched when needed to battalion class III supply points to resupply attached tank elements. They are sent to the tank company class III supply point to resupply tank elements under tank company control. When they arrive at the battalion or tank company class III supply point, they are sent to a prearranged location where they are released to the tank unit. Upon assuming control of these vehicles, the tank unit commander has guides conduct them from tank to tank, or to a central point from which delivery to tanks can be made by the tank crews. The fuel and lubricant vehicles promptly return with the empty fuel drums to the regimental class III supply point. This procedure is repeated as necessary. Commanders anticipate their class III supply needs and make the required supplies available to tank units by prearrangement.

f. When the tank company is detached from the regiment or is operating independently at a great distance from the regiment, part or all of the fuel and lubricant vehicles of the tank company section of the regimental service platoon may be attached to the tank company.

103. CLASS V SUPPLY. a. General.

(1) See FM 7-30.

(2) The tank company carries its basic load of ammunition at all times, and every effort is made to maintain this load. Ammunition for the company weapons is carried by individuals, as well as in the tanks. Vehicular ammunition

loads are promptly replenished after engagements or during lulls in the fighting.

b. Replenishment during attack.

- (1) During the approach march, the tank company ammunition vehicles of the regimental service platoon, carrying a basic load of ammunition, normally move as a part of the regimental combat train. When contact is imminent, the ammunition vehicles are moved forward to the regimental ammunition supply point.
- (2) When it is necessary to resupply the ammunition of tank units attached to infantry battalions, the ammunition vehicles are dispatched from the regimental ammunition supply point to the battalion ammunition supply points. They are then dispatched by battalion to a pre-arranged location where they are released to the control of the attached tank unit. The commander of that unit has them guided from tank to tank, or he sends them to a central point from which delivery to the tanks can be completed by $\frac{1}{4}$ -ton trucks. The supported battalion commander may facilitate ammunition resupply of the attached unit by having men from the pioneer and ammunition platoon uncrate ammunition. When resupply has been accomplished, the ammunition vehicles are returned to battalion control by the attached tank unit. Battalions return them to the regimental supply point where the remaining ammunition is consolidated. Empty vehicles are dispatched to the army ammunition supply point for refill.

- (3) The tank company commander is responsible for the initial supply of ammunition to all elements of the company, and for resupply to those tank elements not attached to the battalions. This is accomplished in the outlined manner except that the chain of responsibility is from regiment to the tank company.

c. Replenishment during defensive operations.

In the defense, it may be necessary to place ammunition at tank firing positions to execute special fire missions and to be sure the tanks can give continuous fire support. This action having been directed by the appropriate higher commander, the ammunition vehicles of the tank company section of the service platoon are used to place the ammunition in concealed and defiladed positions accessible to each tank. When the required amount has been placed at the position, the trucks' loads are promptly replenished and they are held at the regimental field train bivouac or the regimental ammunition supply point until needed.

d. Replenishment in retrograde operations.

During retrograde movements, each tank platoon keeps enough ammunition for the contemplated action. They may be resupplied by releasing ammunition vehicles to the tank platoons on successive delaying positions; or the regimental or higher commander may establish ammunition reserves on rearward positions or en route to them. The regimental S-4 informs the tank company and battalion commanders of the location of such reserves.

e. Replenishment on detached or distant mission. When the tank company is detached from the regiment or is operating as a unit at a great dis-

tance from the regiment, some or all of the ammunition vehicles of the tank company section of the regimental service platoon may be attached to the tank company.

f. Company ammunition supply point. The company ammunition supply point, operated by the supply sergeant, is located near the company command post to take advantage of the company communication net. Vehicles going to and from the company ammunition supply point are routed to avoid the company command post. Desirable characteristics of a company ammunition supply point are: location at or behind the point where covered routes diverge to the various tank elements; ease of motor movement to the front and rear; concealment from air and ground observation; defilade from enemy flat trajectory fire; difficulty of enemy identification; ease of friendly identification.

Section II. MAINTENANCE AND VEHICULAR RECOVERY

104. ORGANIZATION FOR MAINTENANCE AND RECOVERY.

a. The tank maintenance section of the regimental service platoon is organized to perform organizational maintenance on tanks and vehicular armament.

b. The maintenance section of the tank company is organized and equipped to recover wheeled and tracked vehicles, and to perform organizational maintenance on wheeled vehicles, tanks, vehicular and individual armament, and radios. The company executive officer is the company motor officer.

105. NATURE OF COMPANY MAINTENANCE.

The available time, the tactical situation, the skill of the personnel, and the availability of spare parts and

tools determine the extent of the maintenance and recovery performed by the company. The tank company is restricted to organizational maintenance, and it undertakes no maintenance operation that requires a long time to complete. All personnel emphasize preventive maintenance. Repairs to vehicles or other equipment take the form of corrective maintenance including adjustment, correction of minor deficiencies, minor repairs, emergency repairs, and authorized replacements. The company commander, usually accompanied by the executive officer, makes periodic inspections to determine the condition of vehicles, weapons, equipment, and tools.

106. VEHICULAR MAINTENANCE. **a.** The company commander is responsible for organizational maintenance including the scheduling of preventive services and corrective procedures.

b. The platoon leader is responsible to the company commander for all services performed by the crews of his platoon. He advises and assists the vehicle commanders in procuring spare parts and supplies. By frequent inspections and spot checks he assures himself that the required maintenance is carried out, and that the vehicles of the platoon are operating at maximum efficiency.

c. The vehicle crew, operating under the supervision of the vehicle commander, performs driver maintenance. The minor company maintenance that the crew is authorized to perform is done under the supervision of the company motor sergeant. The vehicle commander is responsible for the services performed by the members of his crew. He reports all deficiencies requiring maintenance which he is not authorized to

perform. In the company headquarters section each vehicle commander is responsible to the company commander for the condition of his vehicle.

d. The motor sergeant operates under the supervision of the executive officer (motor officer) and supervises organizational maintenance performed within the company. He requisitions spare parts and unit replacements authorized for organizational maintenance of the company vehicles. He keeps the company's reserve of spare parts at the authorized level. He keeps a duty roster on which is a record of all scheduled maintenance in the company.

e. The executive officer (motor officer) is responsible to the company commander for maintenance performed within the company. By close supervision of organizational maintenance, frequent inspections, and spot checks, he assures himself that maintenance procedures are carried out according to the pertinent directives. He checks spare parts and supplies for correct requisition form, correct SNL parts numbers, and the proper level of reserve spare parts. He returns salvaged spare parts for exchange. He maintains liaison with the regimental motor transportation officer, who helps him in the repair and recovery of company vehicles and the procurement of needed spare parts.

f. The tank company maintenance section marches at the rear of the company. When a company vehicle falls out, a maintenance vehicle halts with it. If the vehicle can be repaired within a reasonable time, the company maintenance section does so; otherwise, it is left and its location is reported to regiment for repair or evacuation by the regimental tank maintenance section. Within the division the vehicle crew accompanies

its disabled vehicle through the various echelons of maintenance and may assist in its repair. Upon completion of repairs the crew returns the vehicle to the unit. If the repairs require a long time, or if the vehicle is transferred for replacement, the crew returns to the company.

107. VEHICULAR RECOVERY. a. To make possible the constant close support of the tank elements, the recovery operations of the tank company maintenance section are limited to short hauls. The tank recovery vehicle commander directs and supervises recovery operations.

b. During an attack the tank company maintenance section follows the company as closely as conditions permit, and rejoins it during breaks in operations. Recovery duties of the tank company maintenance section are—

- (1) Repairs disabled tanks which can be put back into action quickly, first towing them into defilade if there is danger from enemy fire.
- (2) Moves those tanks which it cannot repair to a covered position on or near the axis of supply and evacuation, and informs the regimental motor transportation officer of the type of vehicle, its location, and its condition.
- (3) Extricates tanks which have become mired or immobilized by other obstacles.
- (4) In retrograde movement, tows tanks which are repairable and destroys tanks which cannot be evacuated.

c. In the assembly area, the maintenance section repairs vehicles, weapons, and radios. It gives priority to the repair of that equipment which can be readied

for action within the available time. Equipment which cannot be repaired within a reasonable time is reported to the regimental motor transportation officer.

d. Night recovery may require daylight reconnaissance to determine the exact location of disabled tanks and routes of approach to them. Prior preparation is necessary to recover vehicles disabled in mine fields.

e. To maintain continued and uninterrupted maintenance, recovery, and evacuation support, company plans are coordinated with the plans of the regimental tank maintenance section and the division ordnance company. Vehicles beyond the facilities of company maintenance may be—

- (1) Evacuated to the vehicle collecting point established and operated by the division ordnance company.
- (2) Evacuated to the regimental tank maintenance section.
- (3) Evacuated to the axis of supply and evacuation or to defilade, and the regimental motor transportation officer notified of the type of vehicle, its exact location and extent of damage, and the tactical situation.

108. WEAPON MAINTENANCE. Each man is responsible for first echelon maintenance of his individual weapon. The tank crews are responsible for organizational maintenance of the vehicular weapons. All weapons are cleaned frequently and minor adjustments are made when necessary. The artillery-armorer mechanics perform organizational maintenance on damaged weapons. Individual weapons requiring higher echelon work are evacuated to the division ordnance company through normal supply channels. Weapons mounted

on vehicles are evacuated to regiment or division for extensive maintenance.

109. SUPPORTING MAINTENANCE. **a.** The tank maintenance section of the regimental service platoon reinforces the tank company maintenance section by performing heavier and more complicated organizational maintenance. The regimental tank maintenance section is limited to the performance of organizational maintenance on tanks and vehicular armament. Vehicles and other equipment requiring field maintenance are evacuated to the division ordnance company shop.

(b.) Initially the regimental tank maintenance section is in the regimental field train bivouac. Thereafter, it closely follows the tank elements along the axis of supply and evacuation. When the tank company is detached from the regiment or is operating as a unit at a great distance from the regiment, the regimental tank maintenance section may be attached to the tank company.

Section III. MEDICAL SERVICE

110. INDIVIDUAL TRAINING. Since immediate support from medical personnel is impracticable, all members of the tank company are trained in first aid and in the proper methods of evacuating wounded crew members from tanks.

111. REGIMENTAL MEDICAL COMPANY. For the composition and duties of the regimental medical company, see FM 7-30. The regimental medical company establishes aid stations in the area of each battalion and a centrally located collecting station in the regimental rear area.

112. MEDICAL AID AVAILABLE TO TANK COMPANY.

a. Company aid man. The one medical company man attached to the tank company is known as the company aid man. He remains with the company when it is on the march, in bivouac, and in combat. He carries an aid pouch containing medical equipment such as bandages, dressings, and tourniquets. He maintains contact with the platoons, administers emergency treatment, and informs the medical company of the location of all tank company elements.

b. Aid station.

- (1) Elements of the tank company use the aid stations of battalions in whose areas they are operating. If not operating in battalion areas, they use the regimental collecting station or the nearest battalion aid station.
- (2) At the beginning of an action, the tank company commander contacts the regimental surgeon to learn which medical installations are to be used by elements of the tank company; thereafter, he keeps the surgeon informed of changes in the location of these elements.

113. EVACUATION. The battalion medical platoon evacuates litter cases of the attached tank elements to the battalion aid station. The regimental surgeon arranges for the evacuation of casualties of tank elements not attached to battalions.

114. MEDICAL SUPPORT. The tank company order includes the designation and locations of medical installations to which casualties are evacuated. All members of the company are informed of these desig-

nations and locations. If changes in the system of evacuation are made, the company commander checks to see that the necessary additional instructions are issued.

115. SANITATION. The company commander is responsible for the sanitation within his company and the area which his company occupies. He is assisted by the company aid man in the execution of this responsibility. (For details concerning military sanitation, see FM 21-10.)

CHAPTER 7

TRAINING

Section I. PURPOSE AND SEQUENCE

116. PURPOSE. a. The ultimate goal of all military training is victory in war. Training is continuous before, during, and after battle. Since tactical requirements, climatic conditions, and weather cannot always be accurately foreseen, all training is directed toward the most effective functioning of the tank company under any conditions. For subject schedule, see appendix I.

b. Training is conducted to develop the ability and will to take offensive action in combat. To build that offensive spirit, training develops aggressive, resolute, thoroughly capable individuals and units whose skill, initiative, and confidence instill in them the will to close with the enemy and destroy him.

117. SEQUENCE. Training of the tank company progresses from individual training to unit training to combined training. The objective of individual training is the development of the skill and knowledge necessary to prepare the individual for team training. The objective of the tank company unit training is to produce teams (platoons and sections) skilled in the techniques and tactics of the employment of tanks with infantry. The objective of combined training is to develop teamwork among the tanks, infantry, artillery, signal and medical troops, and engineers.

Section II. INDIVIDUAL TRAINING

118. REFERENCES. **a.** The individual training of tank crew members is covered in the 17-series field manuals. Tank personnel are thoroughly trained in their regularly assigned duties and in the duties of the other crew members. This is necessary to maintain fighting efficiency in spite of casualties.

b. Training films and film strips are exceedingly valuable training aids in the training of the individual. (See FM 21-7.)

119. PHYSICAL TRAINING. The company commander conducts a program of strenuous physical conditioning and development according to FM 21-20.

120. TANK GUNNERY TRAINING. **a.** The tank crew members are trained in tank gunnery according to FM 23-100.

b. Field firing with practice ammunition consists of firing from a prepared position as well as combining fire and maneuver. To promote realism, targets are designed and located to approximate battlefield conditions.

121. DRIVER TRAINING. **a.** See FM 25-10 and TM 21-306 for details of tank driver training. Cross-country driving and other forms of difficult driving are emphasized during training. Cross-country driving instruction includes not only driving courses, but also driving over rough terrain and types of ground encountered in combat. Only experience teaches the driver the capabilities of his vehicle.

b. Instruction in night driving under blackout conditions, on roads, and cross-country, is stressed. Night driving starts with easy exercises such as driving during bright moonlight over good routes. After proficiency is gained under these conditions, more difficult exercises are conducted.

Section III. UNIT TRAINING

122. PURPOSE. Unit training promotes the development of teamwork, leadership, and the application of technique and tactics to combat situations. The objective of unit training for each tank unit is the early development of an efficient, hard-striking unit prepared for combined combat operations against a well equipped and well trained enemy. Unit training commences with the thorough training of small units.

123. TEAMWORK. Teamwork is essential to success in war. Individuals constantly trained, quartered, and fed together develop a feeling of solidarity, which is fostered by making individual assignments as permanent as possible. Teamwork is based on the belief that missions assigned to the team can be accomplished, knowledge that the leadership is competent, and confident that each team member will efficiently perform his share of the task. Training in teamwork is included in all phases of training.

Section IV. COMBINED TRAINING

124. GENERAL. Combined training begins as soon as individual and unit training are completed. Success in battle depends upon the coordinated employment of

all available arms and techniques. This teamwork is obtained only through the painstaking combined training of highly trained individuals and units.

125. COMBINED EXERCISES. Combined exercises with infantry, artillery, medical, signal, engineers, and air units, are held whenever possible. For types and scope of exercises, see appendix I.

APPENDIX I

UNIT TRAINING PROGRAM

1. GENERAL. a. The following training schedules and training schedule notes cover the preparation and execution of field exercises in which the tank company participates with other elements of the regiment. They are guides only and should be expanded or modified as local situations and the particular needs of individual units may warrant. However, the tank company is not fully trained until it has participated in exercises covering all phases of each type of operation outlined.

b. In addition to serving as guides for tactical training, the training schedule notes cover essential points to be included by higher commanders in testing the tactical efficiency of the regimental tank company.

2. PHASES. The training program divides the training into three phases—

<i>Phase</i>	<i>Hours</i>
Section	30
Platoon	120
Company	58
Total	208

3. TRAINING SCHEDULE—TANK SECTION.

P—Period
H—Hour

Total hours: 30

P	H	Lessons	Text references (FM 7—35)	Area	Training aids and equipment
1	3	Firing positions and methods of advance. (Conference 1 hr; field exercise 2 hrs.)	Pars. 36, 37.	Classroom and appropriate terrain.	For instructor — charts. For students — notebook, pencil, individual equipment, tanks, infantry platoon.
2	6	Combat within towns. (Conference 1 hr; field exercise 5 hrs.)	Par. 62.....	do.....	For instructor — charts. For students — notebook, pencil, individual equipment, infantry platoon.
3	6	Combat in woods. (Conference 1 hr; field exercise 5 hrs.)	Pars. 38 to 59, incl.	do.....	Do.
4	2	Cold weather operations. (Conference.)	Par. 66.....	Classroom.....	Charts and training films.
5	6	Road blocks. (Conference 1 hr; field exercise 5 hrs.)	Par. 73.....	Classroom and appropriate terrain.	For instructor — charts. For students — notebook, pencil, individual equipment, tanks, infantry platoon.
6	7	Selection, preparation, and occupation of positions in the defense. (Conference and demonstration 2 hrs; field exercise 5 hrs.)	Par. 75.....	do.....	For instructor — charts. For students — notebook, pencil, tanks.

4. TRAINING SCHEDULE NOTES—TANK SECTION. a. Firing positions and methods of advance (first period)

Scope

An exercise involving a tank section selecting primary, alternate, and supplementary positions, movement by successive and alternating bounds, and occupation of hull and turret defilade positions.

Standard procedure

The section leader requires each tank crew to select primary and alternate positions from which a given target can be engaged. Supplementary positions also are selected and occupied.

The section leader moves the section by alternate and successive bounds, emphasizing the selection of proper turret defilade firing positions.

The section leader has the section occupy hull and turret defilade positions.

b. Combat within towns (second period).

Scope

A problem involving the tank section attached to a rifle platoon in an attack within a town of considerable size.

The situation is drawn to require—

Selection of proper infantry-tank formations.

Conduct of the attack through a given area within the town.

Teamwork between infantry and tanks.

Use of special equipment such as tank dozers.

Selection and occupation of positions to protect the team from counterattacking armor

Standard procedure

The rifle platoon leader issues an order which announces the infantry-tank formation. The rifle platoon leader and tank section leader solve various situations requiring infantry-tank teamwork during the advance. Emphasis is placed on target designation and fire control and the methods by which the infantry designates targets to the tanks. Methods of advance within the town are practiced.

The third tank in the section is a tank dozer. At least two situations arise in which paths are cleared for the tanks

Scope

after the objective is taken.

Reorganization on the objective.

Standard procedure

by the tank dozer.

Reorganization on the objective includes the selection and occupation of firing positions by the tanks, and use of the tank dozer to build rubble and earth piles as antitank obstacles, and to construct emplacements. The problem ends when the objective is organized.

c. Combat in woods (third period).

Scope

A problem involving the tank section attached to a rifle platoon in an attack in woods.

The situation is drawn to require—

Selection of proper tank formations.

Teamwork between infantry and tanks.

Methods of communications between infantry and tanks.

Means of designating targets to tanks in woods.

Selection of proper type of ammunition for each target.

Reorganization after taking objective.

Standard procedure

The rifle platoon leader issues an order in which he announces the initial infantry-tank formation. The rifle platoon leader and tank section leader solve various situations requiring teamwork between the tanks and infantry. During this teamwork all means of fire control, target designation, and communication available within the team are used. Tank crews are required to select either high explosive, armor-piercing, or machine gun ammunition in engaging targets where safety of the friendly infantry must be considered. The problem ends when the team has reorganized on the objective.

d. Cold weather operations (fourth period).

Scope

A conference stressing the effect of extreme cold upon

Standard procedure

A presentation of the difficulties of tank employment in

Scope

tank equipment and personnel, followed by the methods and special equipment used to overcome such difficulties.

Standard procedure

extreme cold, with known methods of overcoming these difficulties. Use existing training film covering special arctic operations and training.

e. Road blocks (fifth period).

Scope

A problem involving a section of tanks attached to a rifle platoon defending a road block which is out of support-distance of other support weapons.

The situation is drawn to require—

Selection of locations to erect obstacles or place mines.

Erection of road blocks.

Selection and occupation of primary and alternate firing positions to cover areas in front of the obstacle.

Withdrawal of the team from the initial road block to a road block in the rear, and occupation of new positions.

Standard procedure

The rifle platoon leader and tank section leader select the location of the obstacle so the area in front of it can be covered by tank cannon fire. Premature disclosure of the obstacle is avoided. The tanks select and occupy primary and alternate positions well away from the road (not astride) to cover the area in front of the road block. The enemy outflanks the team, forcing it to withdraw and defend a road block in rear of the initial one. The withdrawal of the infantry and tanks to the second road block is coordinated by the platoon leader. The second road block is hurriedly established with antitank mines, and the tanks are given only enough time to select and occupy primary firing positions.

f. Selection, preparation, and occupation of positions in the defense (sixth period).

Scope

A problem involving a tank section occupying firing positions within the defensive area of a rifle platoon during day-

Standard procedure

The rifle platoon leader is notified that a section of tanks will occupy firing positions within the area of the rifle

Scope

light and darkness.

The situation is drawn to require—

The reconnaissance for selection of, and occupation of firing positions within a platoon defensive area during daylight.

Preparation of firing data to engage targets which suddenly appear in the field of fire of the various tanks.

Withdrawal of tanks to alternate positions within the same platoon area or the area of an adjacent platoon.

Occupation of tank positions during darkness inside the area of a front line rifle platoon.

Standard procedure

platoon. The problem covers coordination between the tank section leader and the rifle platoon leader before the tanks move into position. Primary positions are selected, prepared, and occupied by the tank section. Tanks engage targets representing hostile armor at ranges from 800 to 1200 yards.

The tank section is required to occupy alternate positions to engage an enemy armored attack; to move from alternate to supplementary positions; and to occupy positions in a different platoon position during darkness.

5. TRAINING SCHEDULE—TANK PLATOON.

P—Period
H—Hours

Total hours: 120

P	H	Lessons	Text references (FM 7—35)	Area	Training aids and equipment
1	8	Movement to contact. (Conference 1 hr; field exercise 7 hrs.)	Pars. 21 to 23, incl.	Classroom (indoor or outdoor) and appropriate terrain.	For instructor — blackboard and charts. For student — notebook, pencil, individual equipment, tanks.
2	8	Platoon combat formations. (Conference 1 hr; field exercise 7 hrs.)	Par. 35.....	do.....	Do.
3	8	Positions and methods of advance. (Conference 1 hr; field exercise 7 hrs.)	Pars. 36, 37.	Classroom (indoor or outdoor) and appropriate terrain.	For instructor — blackboard, charts. For student — notebook, pencil, individual equipment, tanks.
4	2	The infantry-tank team. (Conference.)	Pars. 38 to 41, incl.	do.....	Same as 3d period, less tanks.
5	8	Infantry-tank methods of attack. (Conference 1 hr; field exercise 7 hrs.)	Par. 56.....	Classroom (indoor or outdoor) and appropriate terrain.	For instructor — blackboard, charts, sandtable. For student — notebook, pencil, individual equipment, tanks, infantry platoon.

6	2	Troop leading procedure. (Conference.)	Par. 46.....	Classroom (in-door or out-door).	Same as 3d period, less tanks
7	16	Attack. (Conference 1 hr; sandtable 2 hrs; field exercises 13 hrs.)	Pars. 33 to 59, incl.	Classroom (in-door or out-door) and appropriate terrain.	For instructor — blackboard, charts, and sandtable. For student — notebook, pencil, individual equipment, tanks, infantry platoon. Do.
8	4	Reorganization. (Conference $\frac{1}{2}$ hr; tactical walk 1 hr; field exercises $2\frac{1}{2}$ hrs.)	Pars. 59 to 60, incl.	do.....	Do.
9	6	Pursuit. (Conference 1 hr; field exercise 5 hrs.)	Par. 61.....	do.....	Same as 7th period, less sandtable.
10	10	Attack of a town. (Conference 1 hr; sandtable 1 hr; field exercises 8 hrs.)	Par. 62.....	do.....	Same as 7th period.
11	8	Attack of a river line. (Conference 1 hr; sandtable 1 hr; field exercises 6 hrs.)	Par. 63.....	Classroom (in-door or out-door) and appropriate terrain.	For instructor — blackboard, charts, and sandtable. For student — notebook, pencil, individual equipment, tanks, infantry platoon. Do.
12	8	Attack of a fortified position. (Conference 1 hr; sandtable 1 hr; field exercise 6 hrs.)	Par. 64.....	do.....	Do.

TRAINING SCHEDULE—TANK PLATOON (continued)

P	H	Lessons	Text references (FM 7—35)	Area	Training aids and equipment
13	8	Night attack. (Conference 1 hr; sandtable 1 hr; field exercise 6 hrs.)	Par. 65.....	Classroom (indoor or outdoor) and appropriate terrain.	For instructor — blackboard, charts, and sandtable. For student — notebook, pencil, individual equipment, tanks, infantry platoon.
14	4	Defense: combat outpost. (Conference ½ hr; sandtable 1 hr; field exercise 2½ hrs.)	Pars. 73 to 76, incl.	do.....	Do.
15	4	Defense: antitank protection and close support of MLR. (Conference ½ hr; sandtable 1 hr; field exercise 2½ hrs.)	Pars. 73 to 76, incl.	Classroom (indoor or outdoor) and appropriate terrain.	For instructor — blackboard, charts, and sandtable. For student — notebook, pencil, individual equipment, tanks, infantry platoon.
16	4	Defense — reserve unit. (Conference ½ hr; sandtable 1 hr; field exercise 2½ hrs.)	Pars. 73 to 76, incl.	do.....	Do.
17	4	Daylight withdrawal. (Conference 1 hr; field exercise 3 hrs.)	Par. 78.....	do.....	Do.
18	4	Night withdrawal. (Conference 1 hr; field exercise 3 hrs.)	Par. 79.....	do.....	Do.

19	4	Delaying action. (Conference 1 hr; field exercise 3 hrs.)	Par. 80.....	Classroom (in- door or out- door) and appropriate terrain.	For instructor — blackboard, charts, and sandtable. For student — notebook, pencil, individual equipment, tanks, infantry platoon.
----	---	--	--------------	--	--

6. TRAINING SCHEDULE NOTES—TANK PLATOON.

a. Movement to contact (first period),

Scope

A problem involving the proper techniques employed by tank platoons marching with mounted or dismounted infantry elements.

The situation is drawn to require—

A march order prescribing the formation, destination, route, order of march, initial point, rate of march, interval, security measures, communication and halts.

Movement of the unit to include reconnaissance of routes and assembly area, march discipline, and use as an advance guard, flank guard, or rear guard.

Standard procedure

The platoon leader issues necessary details of the march order to his tank commanders.

He makes recommendations to the infantry unit leader regarding the best use of tanks on the march and their disposition in the assembly area.

During the march, the platoon leader supervises the march discipline of his tank crews.

Upon completion of the march, the platoon occupies and organizes the assembly area as directed, and reports to the infantry unit commander.

b. Tank platoon combat formations (second period).

Scope

A problem covering the various tank platoon combat formations.

The situation is drawn to require practice in the various tank platoon combat formations to include column, line, line of sections, echelon, and wedge.

Standard procedure

The platoon leader controls the actions of the platoon in practicing the various formations. Emphasis is placed on flexibility, dispersion, and control.

c. Positions and methods of advance (third period).

Scope

A problem involving a tank platoon in movement by

Standard procedure

The platoon leader controls the platoon in movement by

Scope

bounds, fire and maneuver, and selection of firing positions.

The situation is drawn to require—

Movement of sections by successive and alternate bounds.

Fire and maneuver by the platoon.

Selection and occupation of primary, alternate and supplementary positions.

Standard procedure

bounds, and fire, and maneuver, emphasizing selection of route and length of bound.

In the selection of firing positions, fields of fire, cover, and concealment are stressed. Tanks change from one type of firing position to another.

d. The infantry-tank team (fourth period).

Scope

A conference dealing with the infantry-tank team within the infantry regiment. Discuss the mission, characteristics, composition, formation of the team, and plan of supporting fires.

Standard procedure

Discuss the infantry-tank team as shown in the scope, using charts and blackboard illustrations to emphasize particular points.

e. Infantry-tank methods of attack (fifth period).

Scope

A problem involving the various infantry-tank methods of attack, emphasizing when a particular type method should be used.

The situation is drawn to require—

Tanks to initially attack by fire, then move forward rapidly to join the infantry for the assault.

Infantry and tanks to advance together.

Tanks to overwatch infantry.

Standard procedure

The infantry and tanks advance through terrain requiring various methods of attack to be used.

Initially the objective is defined clearly and the terrain is open, permitting the tanks to fire overhead and to the flanks of the advancing infantry. When the infantry reaches the assault position, the tanks move forward rapidly to join them for the final assault, at which time the infantry and tanks advance together.

Scope

Tanks and infantry to approach the objective from different directions.

Standard procedure

During one phase of the advance an antitank mine field is encountered. While gaps are being made in the mine field, the tanks overwatch the advancing infantry.

Finally, a situation is encountered in which it is desirable for the tanks to use one route to close on the objective and the infantry to use another. They converge on the objective from different directions.

f. Troop leading procedure (sixth period).

Scope

A conference involving the steps in troop leading procedure within the infantry-tank team in offensive operations.

The conference includes—

Conferring with the other unit commanders.

Planning a reconnaissance.

Selecting OP's and sending for subordinate leaders.

Making a reconnaissance.

Formulating a plan of attack.

Issuing an order.

Supervising operations.

Standard procedure

Discuss troop leading procedure within the infantry-tank team using charts and blackboard.

g. Attack (seventh period).

Scope

A problem involving a tank platoon attached to an infantry battalion in the assault.

Movement from tactical col-

Standard procedure

The tanks which are moving as part of the regiment move off the route and into an assembly area. Personnel from

Scope

umn into an assembly area, preparation of the platoon for the attack, and movement from the assembly area to an attack position.

Reconnaissance and observation of the ground over which the platoon is to attack.

Plan of action.

Orders.

A series of decisions and orders by the platoon leader during the attack.

Assault of the enemy's position.

Standard procedure

the tank unit guide the tanks to selected positions in the assembly area. These positions provide fields of fire, cover, and concealment and are so located that protection to the assembly area is provided. Once the tanks are in position the crews camouflage them, refuel them, and complete necessary crew maintenance.

The tank platoon leader reports the dispositions of his tanks to the higher commander. In conjunction with other commanders he then moves to the attack position.

Upon completion of his reconnaissance, the tank platoon leader decides upon a plan of action and makes recommendations to his commander. Upon approval of the plan, the tank platoon leader issues the order to his tank crews.

The tank platoon as part of the infantry-tank team moves forward to the attack position. The line of departure is crossed and various situations develop during the attack requiring the tank platoon leader to make decisions.

The attack continues forward, the objective is taken, and reorganization begins.

h. Reorganization (eighth period).

Scope

A problem involving a tank platoon attached to an infantry battalion in the reorganization on the initial battalion objective.

The situation is drawn to require—

Plan for the reorganization.

Disposition of the platoon to repel a counterattack.

A series of decisions and orders by the tank platoon leader to repel a counterattack.

Standard procedure

When the objective has been taken, the platoon leader supervises the reorganization of his platoon, altering the instructions contained in the attack order where necessary.

Tanks are placed to cover likely avenues of approach for enemy armor.

i. Pursuit (ninth period).

Scope

A problem involving the employment of the tank platoon as a part of a larger force in a pursuit.

The situation is drawn to require—

Organization and composition of the infantry-tank team.

A decision on the method of transporting the infantry.

Aggressive movements.

Standard procedure

The platoon leader's plans and orders are covered in the battalion order.

Plans include transporting the infantry on tanks.

During pursuit, small unimportant enemy groups are bypassed.

The platoon leader stays near the head of the formation where he can make quick decisions.

Upon encountering strong enemy resistance, the unit deploys and quickly attacks to destroy the enemy.

After resistance is reduced, the infantry remounts tanks and the advance continues.

j. Attack of a town (tenth period).

Scope

A problem involving the employment of a tank platoon as part of a larger force in the attack of a town or village.

This situation is drawn to require—

Reconnaissance of routes, line of departure, and the ground over which the attack will be made.

Plan of attack.

Penetration of outer defenses.

Mop-up within the town.

Reorganization.

Standard procedure

The tank platoon leader, after making his reconnaissance, recommends the employment of his tanks.

If sufficient strength is available, the tanks and infantry may encircle the town to cut off enemy forces trying to escape, and to cut off enemy reinforcements and resupply.

Some tanks may be effectively employed to assist the infantry in breaching the outer defenses of the town by placing direct fire on buildings to neutralize them while the infantry moves forward to assault.

As soon as the edge of the town is captured, the tanks move forward and join the infantry. They mop up within the town, working closely with the infantry.

After the town is cleared, reorganization takes place and plans to continue the advance are made.

k. Attack of a river line (eleventh period).

Scope

A problem involving a tank platoon as part of a larger force which has been assigned the mission of crossing a river. Engineer and crossing equipment are made avail-

Standard procedure

The assembly area is located within an easy night's marching distance of the river and is screened from hostile observation.

The platoon leader and tank

Scope

able by higher commanders.

The situation is drawn to require—

Reconnaissance for the assembly area, firing positions, routes to firing positions and the crossing site, and the terrain on the far bank.

Plan for movement to the river, the crossing, and action after crossing.

Orders.

Crossing and seizure of the initial objective.

I. Attack of a fortified position (twelfth period).

Scope

A problem involving a tank platoon as part of a larger force in the attack of a fortified position.

The situation is drawn to require—

Planning and preparation.

Orders.

Reconnaissance.

Organization for the attack.

Tank employment.

Standard procedure

commanders make a reconnaissance to select firing positions which best support the initial crossing of the infantry.

Tanks move across as quickly as possible after facilities for the crossing are prepared. They join the infantry to continue the advance.

Standard procedure

The platoon leader makes a reconnaissance and assigns definite targets to the tanks.

The tanks place direct fire on bunkers to keep the enemy from firing at friendly infantry.

As soon as paths are cleared through enemy antitank obstacles, the tanks move forward and advance with the infantry.

Tank commanders are alert for probable enemy counter-attack as soon as a slight penetration has been made.

When the objective has been taken, reorganization is begun and plans are made for the continuation of the attack.

m. Night attack (thirteenth period).

Scope

A night problem involving a platoon of tanks protecting the advance of a battalion from an assembly area to an attack position for a daylight attack.

A problem involving a platoon of tanks and a rifle platoon in a night attack as an infantry-tank team.

The situations are drawn to require—

Rehearsal of the attack during darkness.

Designation of means of recognition of tanks and infantry at night.

Infantry to ride the tanks in the approach march.

Infantry to guide the tanks.

Control in the attack.

Reorganization on the objective.

Standard procedure

To protect the night movement of the battalion, the tanks occupy previously reconnoitered firing positions and establish previously selected roadblocks. The tanks are brought into the attack position at the last possible moment.

The problem is run twice, once as a rehearsal and once as the exercise. Platoon leaders are required to designate special means of identification for tanks and infantry at night. Platoon leaders issue their orders in sufficient time to permit daylight reconnaissance by infantry squad leaders, tank commanders, and drivers. The infantry squads ride tanks until accurate enemy fire is received. The tanks destroy hostile automatic weapons. Situations are presented which require night designation of targets by infantrymen to tank crews. The platoons reorganize on the objective. The problem ends when the objective is organized.

n. Defense combat outpost (fourteenth period),

Scope

A problem involving the tank platoon attached to a rifle company as a combat

Standard procedure

The rifle company commander is given the area and responsibilities of the combat

Scope

outpost.

The situation is drawn to require—

Reconnaissance and orders by the rifle company commander and tank platoon leader.

Selection of tank firing positions.

Occupation of tank firing positions.

Selection of routes of withdrawal for infantry and tanks to positions behind the main line of resistance.

Selection, preparation, and occupation of defended road blocks to delay the advance of an enemy as the combat outpost withdraws to the main line of resistance.

Withdrawal by bounds of the combat outposts.

Standard procedure

outpost. The rifle company commander and tank platoon leader coordinate their reconnaissance. The company commander issues his order.

The tank platoon occupies firing positions having long-range fields of fire to fire on targets representing hostile armor at maximum effective ranges.

Routes of withdrawal, successive delaying positions, and roadblocks to be prepared and defended are announced by the company commander. Enemy attacks force the combat outpost to occupy and defend these positions. By a series of situations the combat outpost is forced to withdraw behind the main line of resistance.

o. Defense, antitank protection and close support of the main line of resistance (fifteenth period).

Scope

A problem involving a tank platoon attached to a front line infantry battalion. Only one rifle platoon is actually employed.

The situation is drawn to require—

The platoon leader's reconnaissance and recommendations to the battalion commander.

Standard procedure

The platoon leader makes a reconnaissance of the battle position and recommends to the battalion commander the disposition of the tank platoon. The platoon leader ties in the fields of fire of his tanks already in position with tanks in positions adjacent to the battalion. When his recommendations have been approved by

Scope

Coordination of the anti-tank defense with adjacent units.

Orders of the platoon leader and disposition of the platoon.

Selection and occupation of primary, supplementary, and alternate firing positions.

Standard procedure

the infantry battalion commander, the platoon leader places his platoon in position. The tanks are forced by the tactical situation to occupy alternate and supplementary positions.

p. Defense reserve unit (sixteenth period).

Scope

A problem involving the tank platoon attached to the reserve battalion of an infantry regiment occupying a defensive position.

The situation is drawn to require—

Counterattack plans to be prepared, involving the use of the tank platoon.

Plans of the platoon leader to carry out various counterattack plans of the battalion.

Execution of one plan.

Standard procedure

The battalion commander's counterattack plans are given to the tank platoon leader. The tank platoon leader makes his reconnaissance and plans the execution of each of the battalion counterattack plans. The platoon executes one of the plans. The plan executed is varied for each platoon taking the exercise.

q. Daylight withdrawal (seventeenth period).

Scope

A problem involving a tank platoon attached to an infantry battalion in a daylight withdrawal.

The situation is drawn to require—

Infantry battalion and the tank platoon to occupy positions on the main line of resistance.

Standard procedure

The battalion commander's withdrawal order is given to the tank platoon leader. This order requires one section of the tanks and a rifle platoon to hold an important defile or other roadblock until the battalion is safely underway. The covering force then withdraws and establishes a second road-

Scope

Units on the flank of the regiment to be overrun requiring the infantry battalion to withdraw to new positions in the rear.

Covering force to be left to cover the withdrawing elements. A section of tanks is left with the covering force.

Selection of routes of withdrawal, assembly areas, and positions on the new battalion position.

Standard procedure

block. The platoon leader goes to the new battalion position and selects positions for his tanks. His recommendations are approved by the battalion commander. The platoon leader then puts his tanks in position. The problem ends when the covering force tanks have rejoined the platoon and occupy their primary firing position.

r. Night withdrawal (eighteenth period).

Scope

A problem involving a platoon of tanks in a night withdrawal while attached to an infantry battalion.

The situation is drawn to require—

Daylight reconnaissance of routes of withdrawal and the new positions to be occupied.

Recommendations by platoon leader to infantry battalion commander for antitank protection of battalion (less the covering force) during withdrawal.

Execution of the withdrawal by all elements of the platoon.

Occupation of new positions prior to daylight.

Standard procedure

The platoon is in position on a main line of resistance. The platoon leader is told to prepare for a night withdrawal. He is given the new area to be occupied and the contemplated route of withdrawal. The platoon leader makes a reconnaissance and selects and orients guides for the route of withdrawal. He selects the new positions to be occupied.

The platoon executes the withdrawal and occupies the new positions during darkness. The problem ends when all tanks have occupied the new position.

s. Delaying action (nineteenth period).

Scope

A problem involving a platoon of tanks attached to a rifle battalion conducting an independent delaying action as a covering force for a larger unit.

The situation is drawn to require—

Recommendations of the platoon leader for the anti-tank protection of the first delaying position.

Employment of a tank section on an outpost or a roadblock and its withdrawal to the first delaying position.

Reconnaissance for positions in the rear.

Employment of the platoon on at least two delaying positions.

Standard procedure

The platoon leader makes his reconnaissance and selects positions on the first delaying position. The second section is sent out to establish a road block with a platoon of infantry, avoiding positions astride the road. It is forced to retire to previously selected positions on the first delaying position. The units on the first delaying position are forced to withdraw and occupy a second delaying position. The platoon leader makes his reconnaissance for the third position. The problem ends.

7. TRAINING SCHEDULE—TANK COMPANY

P—Period
H—Hours

Total hours: 58

P	H	Lessons	Text references (FM 7—35)	Area	Training aids and equipment
1	8	Marches. (Conference 1 hr; field exercise 7 hrs.)	Pars. 11 to 22, incl.	Classroom and appropriate terrain.	For instructor — blackboard, charts, sandtable, vehicle w/radio for control in field. For student — notebook, pencil, individual and organization equipment.
2	8	Attack — preparation for the attack. (Conference 1 hr; field exercise 7 hrs.)	Pars. 38 to 57, incl.	do.....	Do.
3	8	Attack — conduct of the attack. (Conference 1 hr; field exercise 7 hrs.)	Pars. 58 to 60, incl.	do.....	Do.
4	8	Attack — pursuit. (Conference 1 hr; field exercise 7 hrs.)	Par. 61.....	do.....	Do.

5	8	Defense — antitank and close support of MLR. (Conference 1 hr; field exercise 7 hrs.)	Pars. 67 to 76, incl.	Classroom and appropriate terrain.	For instructor — blackboard, charts, sandtable, vehicle w/radio for control in field. For student — notebook, pencil, individual and organizational equipment.
6	8	Defense — antitank and close support of MLR. (Conference 1 hr; field exercise 7 hrs.)	Pars. 57 to 76, incl.	do.....	Do.
7	5	Defense — daylight withdrawal. (Conference 1 hr; field exercise 4 hrs.)	Pars. 77, 78.	do.....	Do.
8	5	Defense — night withdrawal. (Conference 1 hr; field exercise 4 hrs.)	Par. 79.....	do.....	Do.

8. TRAINING SCHEDULE NOTES—TANK COMPANY. a. Marches (first period).

Scope

A problem involving the regimental tank company on the march.

The situation is drawn to require—

A march order that covers IP, speed, halts, conduct on the march, and action at the conclusion of march.

One or more situations calling for decisions as to alternate routes, action against enemy air attack, and conduct of the march under blackout conditions.

Standard procedure

The company commander issues clear and concise orders for road marches and necessary reconnaissance. Leaving a bivouac area, conduct on the road, distances, and halts are stressed. Control while marching is emphasized by using all available means of communication, to include arm and hand signals, messengers, and radios.

Blackout marching is conducted at slower rates and reduced distances.

The company commander controls his company and executes the march quickly with minimum fatigue to personnel and damage to equipment.

b. Preparation for the attack (second period).

Scope

A problem involving the tank company attached to an infantry battalion in the attack.

The situation is drawn to require—

Planning and preparations.

Reconnaissance.

Orders.

Organization of the infantry-tank teams for the attack.

Standard procedure

The battalion commander employs the tank company with a rifle company attached in the assault. This force makes the battalion main effort.

The company commander makes his reconnaissance, initiates a reconnaissance by platoon (team commanders, and issues his orders. The problem ends when the assault echelon closes in the attack position.

c. Conduct of the attack (third period).

Scope

A problem involving the tank company attached to an infantry battalion in the attack.

The situation is drawn to require—

Selection of infantry-tank formations in the attack.

Designation of targets.

Control of tank fire by infantry.

Reorganization of the team on the objective.

Standard procedure

The problem begins in the attack position with an infantry-tank team of one rifle company with a tank company attached.

The company (team) commander designates the infantry-tank formations as the team advances by fire and maneuver to close on the objective. The formations include an attack in which the tanks and infantry converge on the objective from different directions. Individual tanks simulate firing at targets designated by selected infantrymen during the advance. The problem ends when the objective is organized.

d. Pursuit (fourth period).

Scope

A problem involving the reinforced tank company leading the regiment in a pursuit.

The situation is drawn to require—

Organization and composition of the team.

Decision on method of transporting the infantry.

Attack from a march column formation.

Standard procedure

The problem begins with an infantry rifle company and the tank company in separate assembly areas. The rifle company is moved into the area of the tank company and mounts on predetermined tanks. The team moves out in an order of march prescribed by the tank company commander. The team encounters and reduces a defended roadblock by an attack from a march column formation. An armored engineer vehicle is employed to reduce the roadblock.

e. Antitank protection and close support of the main line of resistance (fifth period).

Scope

A problem involving the tank company with two platoons attached to one front line infantry battalion, and the company (minus two platoons attached to the adjacent battalion).

The situation is drawn to require—

Company commander or senior platoon leader to make a reconnaissance and submit recommendations to the battalion commander.

Coordination of the anti-tank defense with adjacent units.

Orders of the company commander or senior leader and disposition of the platoons.

Selection and occupation of firing positions.

Standard procedure

The company commander in one battalion area and the senior tank platoon leader in the other battalion area make a reconnaissance of battle position and recommend the disposition of the attached tank units to the battalion commander.

The fields of fire of tanks in position are tied in with the tanks in the adjacent battalion area. Tanks occupy the selected position. The tanks are forced by the tactical situation to occupy alternate and supplementary positions.

f. Reserve unit in defense (sixth period).

Scope

A problem involving the tank company (minus one platoon) attached to the reserve battalion of an infantry regiment in defense.

The situation is drawn to require—

Counterattack plans to be prepared, involving the use of the tank company.

Standard procedure

The battalion commander's counterattack plans are given to the tank company commander. The tank company commander makes his reconnaissance and plans the execution of each of the battalion counterattack plans. The company executes one of the plans.

Scope

Plans of the company commander to carry out various counterattack plans of the battalion.

Execution of one plan.

Standard procedure

g. Daylight withdrawal (seventh period).

Scope

A problem involving the tank company attached to an infantry battalion in a daylight withdrawal.

The situation is drawn to require—

Infantry battalion and the tank company to be in defensive positions.

Covering force including tanks, to be left to cover the withdrawal.

Selection of routes of withdrawal, assembly area, and new firing positions after the withdrawal.

Standard procedure

The battalion commander gives a withdrawal order which requires one platoon of tanks and one rifle platoon to hold a key terrain feature, until the battalion is safely underway. The covering force then becomes a rear guard.

The company commander proceeds to the new battalion position and selects positions for his tanks. The problem ends when the covering force tanks rejoin the tank company and all tanks have occupied their new positions.

h. Night withdrawal (eighth period).

Scope

A problem involving the tank company in a night withdrawal while attached to an infantry battalion.

The situation is drawn to require—

Daylight reconnaissance of routes of withdrawal and the occupation of new positions.

Execution of the withdrawal.

Standard procedure

The tank company is attached to a front line battalion. The company commander is told to prepare for a night withdrawal. He is given the new area to be occupied and the contemplated route of withdrawal. The company commander makes a reconnaissance and selects and orients guides for the actual route of withdrawal. He

Scope

Occupation of the new area before daylight.

Standard procedure

selects the new positions to be occupied.

The company executes the withdrawal. The problem ends when the new positions are occupied.

APPENDIX II

REFERENCES

Tank platoon and tank company, FM 17-32.
Attack in towns, FM 100-5 and FM 31-50.
Attack of a fortified position, FM 100-5 and FM 31-50.
Attack in mountains, FM 100-5 and FM 70-10.
Attack in jungles, FM 100-5 and FM 72-20.
Attack in the desert, FM 100-5 and FM 31-25.
Attack in the snow and cold climates, FM 100-5 and
FM 70-15.

INDEX

	<i>Paragraph</i>	<i>Page</i>
Administrative, mess, and supply ..	3, 5	3, 8
Advance party	24	29
Aerial reconnaissance	48	60
Aid station	111, 112	153, 154
Ammunition dumps	60	78
Ammunition supply points	103	145
Antipersonnel mines	39	51
Antitank fires	73, 75	101, 105
Defense	69, 72, 74, 76	98, 101, 104, 108
Minefields	65, 69, 78	93, 98, 112
Protection	2, 21, 59, 63	1, 26, 76, 86
Weapons	39, 56, 58	51, 66, 74
Approach march	11	18
Areas of employment	42	56
Armor protected fire power	39, 74	51, 104
Artillery mechanic armorer	108	152
Assault	58	74
Assembly area:		
Characteristics	23	29
Defense	74	104
Departure from	23	29
For river crossing	63	86
Occupation of	23	29
Organization of	23	29
Selection of	23	29
Attachments, tank platoon	34	43
Attack	2, 58	1, 74
Plan for	57	72
Attack order	53, 64	64, 89
Attack position	30	41
Attack of fortified position:		
Employment	64	89
Orders	64	89
Organization	64	89
Planning and preparation	64	89
Reconnaissance	64	89
Attack of a river line	63	86

	<i>Paragraph</i>	<i>Page</i>
Attack of towns.....	62	82
Avenues of approach.....	30, 51, 58	41, 62, 74
Axis of communication.....	31, 95	42, 139
Barbed wire	39	51
Battle position	67	98
Boundaries	65	93
Bridgehead	63	93
Bugler	84	118
Call words	90	134
Camouflage	23, 27, 64, 75	29, 36, 89, 105
Capabilities, tank	2	1
Characteristics, tanks	6	9
Clock system	59	76
Close column	18	24
Close combat	65	93
Cold weather operations:		
Maintenance	66	96
Supply and evacuation.....	66	96
Combat outpost	73, 76	101, 108
Combined training	124	158
Command	43	56
Group	61	79
Post	94, 95	139
Tanks	70	99
Communication	39, 45, 55, 82-97	57, 58, 65, 118
Chief	5, 84, 92	8, 118, 136
Orders	95	139
Security	92	136
Training:		
Basic	97	141
Combined	97	141
Section	97	141
Company:		
Aid man	112	154
Command net	88	131
Commander	4, 41, 69, 78, 83, 84, 103	6, 54, 98, 112, 118, 145

	<i>Paragraph</i>	<i>Page</i>
Headquarters	3, 5, 70	3, 8, 99
Concealment	58, 75	74, 105
Conduct of attack	58	74
Conduct of pursuit	61	79
Continuation of attack	59	76
Control	35, 62, 65, 70, 76, 78, 85	44, 82, 93, 99, 108, 112, 120
Cooperation	38	51
Coordination	38, 44, 56, 62, 64, 65, 74, 79	51, 57, 66, 82, 89, 93, 104, 114, 120
Counterattack	2, 42, 67, 68, 70, 72, 73, 74	1, 56, 98, 99, 101, 104
Cover	51, 58, 75	62, 74, 105
Covering force	67, 78, 79	98, 112, 114
Crossing priority, river.....	63	86
Crossing site, river	63	86
Defense:		
Against counterattack	59	76
Conduct of	76	108
Doctrine	67	98
In depth	70	99
Mission	68	98
Objective	67	98
Defilade:		
Hull	36, 56, 58, 75	44, 66, 74, 105
Turret	36	44
Defiles	51, 58	62, 74
Delaying action:		
Tank employment	80	116
Tank mission	80	116
Density, vehicular	17, 18, 19	24, 25
Direct fire support	63	86
Direction of attack	53	64
Duties:		
Artillery mechanic armorer..	5, 108	8, 152
Auto mechanic	5	8
Bugler	5, 84	8, 118
Communication chief	5, 99	8, 143
Company clerk	5	8

	<i>Paragraph</i>	<i>Page</i>
Company commander	4, 97	6, 141
Cooks	5	8
Executive officer	4, 99	6, 143
First sergeant	5	8
Liaison agent	5, 55	8, 65
Mess steward	5, 99	8, 143
Motor sergeant	5, 106	8, 149
Platoon leader	4	6
Radio repairman	5, 84	8, 118
Supply sergeant	5	8
Tank mechanics	5	8
Vehicle tank recovery crew..	5, 107	8, 151
Embrasures	58, 62, 64	74, 82, 89
Employment, in river crossing....	63	86
Encirclement of towns	62	82
Estimate of the situation.....	34, 41, 51, 57	43, 54, 62, 72
Evacuation	60, 113	78, 154
Executive officer	4, 106	6, 149
Exploitation	2, 61	1, 79
Factors affecting tank employment:		
Maintenance	7	10
Mines	7	10
Noise	7	10
Restricted vision	7	10
Silhouette	7	10
Size	7	10
Supplies	7	10
Terrain	7	10
Weather	7	10
Weight	7	10
Fields of fire	51	62
Fire and maneuver	56, 58	66, 74
Fire control	85	120
Fire power	2, 6, 35, 58	1, 9, 44, 74
Fire superiority	58	74
Fire support	57	72
Firing positions	41, 62, 63, 64, 75	54, 82, 86, 89, 105

	<i>Paragraph</i>	<i>Page</i>
Flag signals	87	129
Flame-throwing tanks	62	82
Flank guards	21	26
Formations, infantry-tank	53, 56	64, 66
Fundamentals of tank employment:		
Concentration of effort	8	13
Fire and maneuver	8	13
Security	8, 21, 22, 23	13, 26, 28, 29
Surprise	8	13
Teamwork	8	13
Headquarters section	3, 5, 61	3, 8, 79
Illuminating shells	65	93
Incendiary action	62	82
Infantry-tank communication	88	131
Infantry-tank team	38, 40	51, 54
Characteristics	39	51
Composition	40	54
Infiltrating column	19	25
Initial fires	56	66
Intelligence	51, 64	62, 89
Interphone system	86	121
Kitchen vehicles	100	143
Liaison	69	98
Light planes	48	60
Lights (signal)	87	129
Limited objectives	62, 78	82, 112
Line of departure	30, 35, 53	41, 44, 64
Main body	22	28
Main line of resistance	72, 73, 76	101, 108
Maintenance	23, 60, 104, 105	29, 78, 148
Section	3, 5, 104, 107	3, 8, 148, 151
Maneuver	2	1
Marches:		
Administrative	12, 21, 22	19, 26, 28
Control	20	25
Objective of	10, 11	17, 18

	<i>Paragraph</i>	<i>Page</i>
Planning and reconnaissance.	15	20
Tactical	13, 21	19, 26
Warning order	14	20
March order	16, 23	20, 29
Communication	16	20
Destination	16	20
Distances	16	20
Halts	16	20
Initial point	16, 23	20, 29
Location of commander.....	16	20
Maintenance	16	20
Order of march	16	20
Rate	16	20
Route	16	20
Security	16	20
Supply	16	20
Medical:		
Aid	112	154
Platoon	113	154
Service:		
Individual training	110	153
Messenger	87	129
Mine fields	44, 74	57, 104
Missions	2, 38, 41, 57, 72	1, 51, 54, 72, 101
Mobility	2, 6	1, 9
Motor sergeant	106	149
Movement by bounds:		
Alternate	37	51
Successive	37	51
Movement to contact:		
Covered	9	17
Phases	10	17
Uncovered	9	17
Mutual support	45, 58, 75	58, 74, 105
Net control station	86	121
Night operations:		
Characteristics	65	93
Conduct	65	93

	<i>Paragraph</i>	<i>Page</i>
Plans	65	93
Reorganization	65	93
Night recovery	107	151
Night river crossing	63	86
Noise, tank	58	74
Objective	57, 58, 65	72, 74, 93
Observation post	62	82
Obstacles, tank	39, 44, 51	51, 57, 62
Offensive action	33-66	43
Open column	17	24
Order, operations	95	139
Orders, attack	53	64
Organization, tank company	3	3
Outposts	26	33
Panel sets	87	129
Patrols	64, 79	89, 114
Penetration	62, 64, 74	82, 89, 104
Phase line	12	19
Plan of maneuver	42	56
Platoon:		
Combat formations	35	44
Defense order	74	104
Leader	4, 74, 106	6, 104, 149
Platoons	3, 43, 73	3, 56, 101
Primary firing position	73, 74, 75, 76	101, 104, 105, 108
Pursuit	61	79
Pyrotechnics	87	129
Radio:		
Advantages	85	120
Discipline	91	135
Equipment	86	121
Frequencies	89	132
Limitations	85	120
Maintenance	96	139
Nets:		
Administrative	88, 93	131, 138
Composition of	88	131
Repairman	84, 96	118, 139

	<i>Paragraph</i>	<i>Page</i>
Telephone procedure	91, 92	135, 136
Authentication	93	138
Raids	79	114
Rear guard	21	26
Recommendations, infantry-tank attack	42	56
Reconnaissance	41, 48, 50, 64, 65, 74	54, 60, 62, 89, 93, 104
Regimental:		
Attack order	46, 53	58, 64
Collecting station	112	154
Evacuation system	60, 113	78, 154
March, foot	21	26
Motor	22	28
Medical company	111	153
Rehearsal	64, 65	89, 93
Reorganization	53, 59, 65	64, 76, 93
Reserve	64, 70, 76	89, 99, 108
Area	76	108
Battalion	76	108
Resupply	51, 53, 60, 100, 101, 102, 103	62, 64, 78, 143, 144, 145
Defensive	103	145
Detached missions	102, 103	144, 145
Retrograde movements	103	145
Retirement	77, 81	111, 117
Retrograde movements	77	111
River crossing	63	86
Road blocks	23	29
Route column	11	18
Routes of approach	42, 58, 63	56, 74, 86
Routes of communication	51	62
Sanitation	115	155
Sections, tank	3, 35	3, 44
Sector of responsibility	76	108
Security	8, 26, 35, 59, 75	13, 33, 44, 76, 105
Service park	32	42
Shock action	2, 6, 58, 74, 76	1, 9, 74, 104, 108

	<i>Paragraph</i>	<i>Page</i>
Signal communication	39, 82-97	118
Signal operation instructions.....	89, 91, 93, 95	132, 135, 138, 139
Signals, arm and hand.....	87	129
Silhouette, tank	7, 58	10, 74
Smoke	62, 78	82, 112
Sound (signals)	87	129
Squads	45	58
Standing signal instructions.....	95	139
Streams	63	86
Supervision	46	58
Supplementary firing position....	73, 75, 76	101, 105, 108
Supply	23, 42, 60	29, 56, 78
Class I	100	143
Class II	101	144
Class III	102	144
Class IV	101	144
Class V	103	145
Means	99	143
Responsibility	98	143
Support	44	57
Supporting:		
Fires	57, 58, 65	72, 74, 93
Maintenance	109	153
Units	45	58
Weapons in town.....	62	82
Surprise	56, 65	66, 93
Swamps	58	74
Tactical	11, 22	18, 28
Tank:		
Barriers	63	86
Company	3, 55, 103	3, 65, 145
Dozers	62	82
Employment in defense.....	70, 73	99, 101
M26	3	3
M45	3, 34	3, 43
Platoon	3, 43, 72	3, 56, 101
Target designation	45	58
Targets	63	86
Teamwork	39, 45, 123	51, 58, 158

	<i>Paragraph</i>	<i>Page</i>
Tentative plan	42	56
Terrain	34, 35, 41, 50, 51, 69	43, 44, 54, 62, 98
Training	116-124	156
Combined	124	158
Driving	121	157
Gunnery	120	157
Individual	118	157
Physical	119	157
Program	app. I	160
Sequence	117	156
Unit	122	158
Transport during pursuit.....	61	79
Troop leading	46, 59, 65	58, 76, 93
Unfordable rivers	63	86
Vehicle collecting point.....	107	151
Vehicle, tank recovery.....	3, 5	3, 8
Visual signals	87	129
Weapon maintenance	108	152
Weight	7, 58	10, 74
Wire (communication)	87	129
Withdrawal	77	111
Daylight	78	112
Night	79	114
Woods	56, 58	66, 74
Zone of action.....	41, 49, 53	54, 60, 64